

# COMMERCIAL REFRIGERATION & AIR CONDITIONING

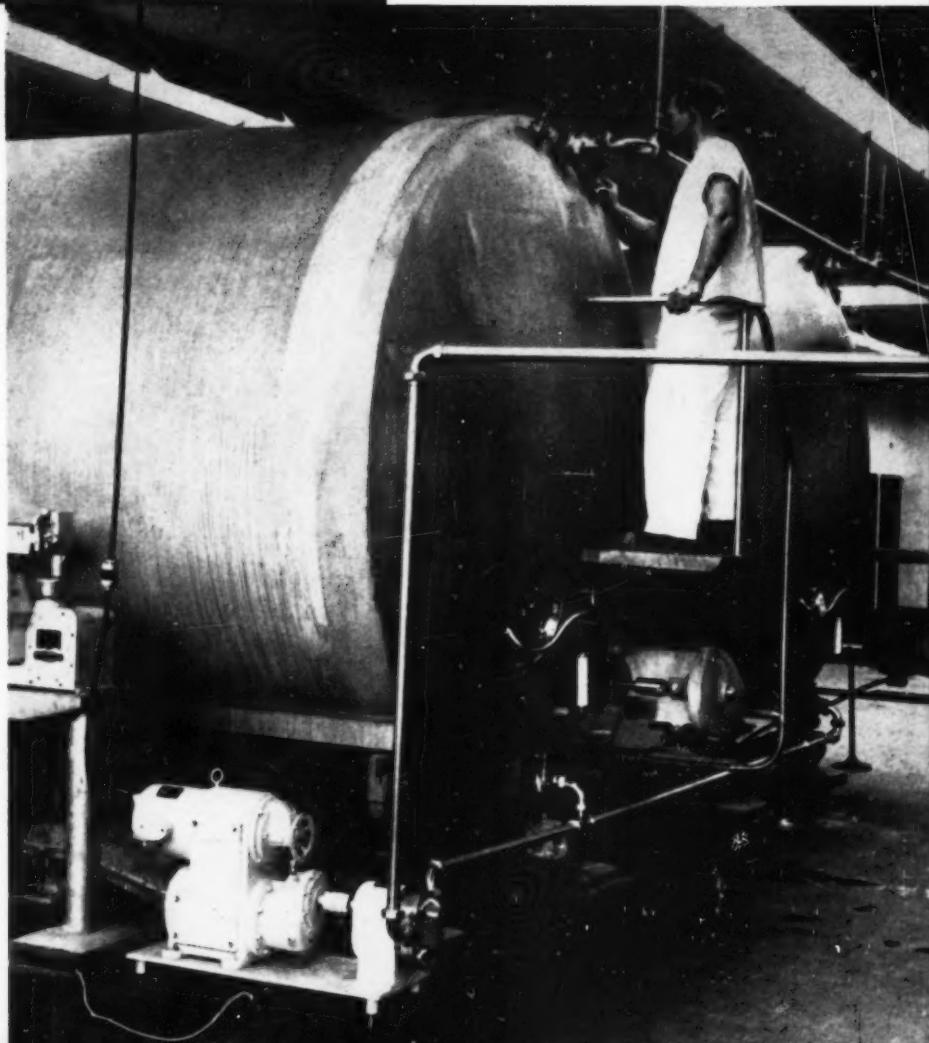
JANUARY 1953

- Contractors Design Cabinet For Stabilizing Metals
- Produce Ripening Controlled By Flexible Cooling System
- Proper Use of Capacitors Speeds Restoration of Service
- How To Design a Floor Panel Radiant Heating System
- New Applications Manual for Contractors

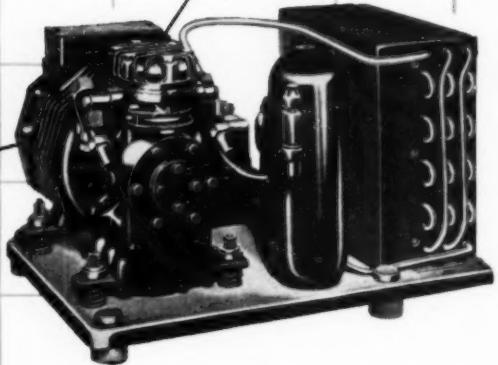
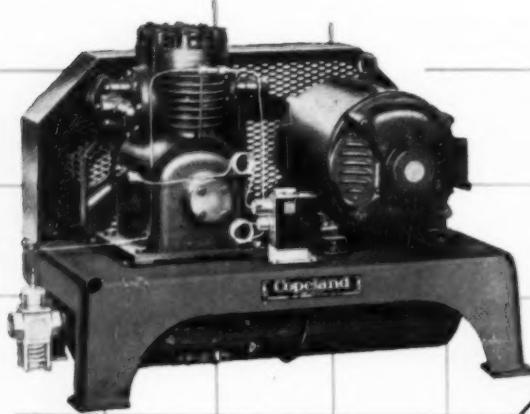
## ABSOLUTE TEMPERATURE CONTROL

Both air conditioning and refrigeration are "musts" in the modern production of yogurt. These 4000-gallon refrigerated tanks receive and store raw milk, and the entire processing area is air conditioned.

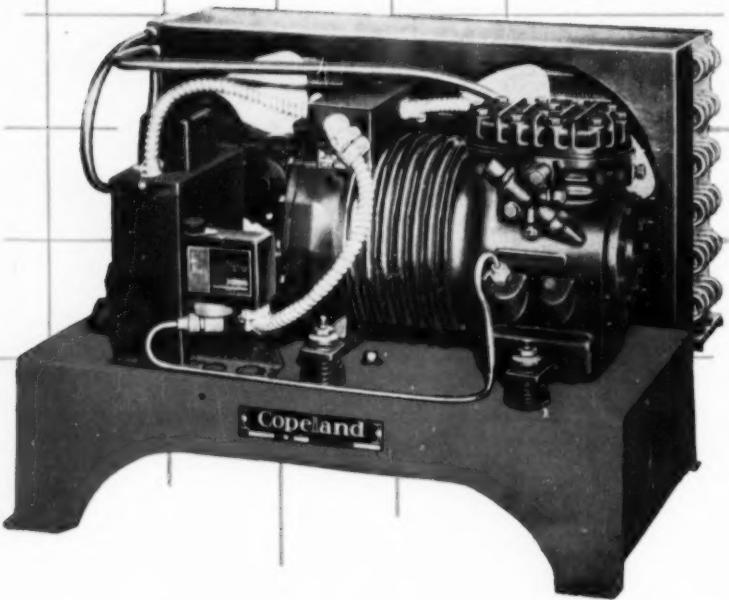
For the complete story on this installation, turn to page 42.



MURKIN MANUFACTURING, SELLING, INSTALLATION AND MAINTENANCE OF  
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT



## profit lines



We're not crystal ball gazing when we tell you the Copeland complete refrigeration line can be your profit line for 1953. We've seen hundreds of dealers and jobbers succeed with Copeland, building their prosperity on three solid facts.

First, the Copeland line offers a unit for every size and type job. Air-cooled, belt-driven models range from  $\frac{1}{4}$  through 3 HP, water-cooled from  $\frac{1}{2}$  through  $7\frac{1}{2}$  HP. Copelametic, the accessible hermetic, is available from  $\frac{1}{6}$  through  $7\frac{1}{2}$  HP.

Second, Copeland's long-standing reputation for recognized quality insures recommendations and repeat sales.

Third, extensive and hard-hitting national advertising pre-sells your prospects, creates a ready acceptance to cash in on.

Display and sell the complete Copeland line — your Profit Line for '53.



**Copeland**  
DEPENDABLE *Electric* REFRIGERATION

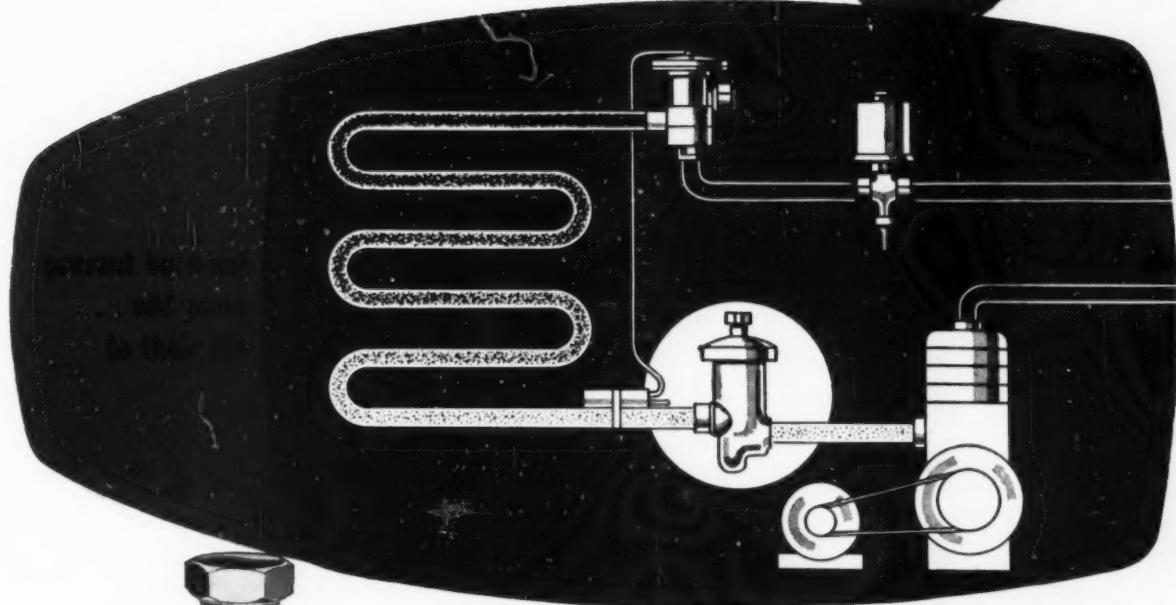


REFRIGERATION UNITS (OPEN-TYPE AND COPELAMETIC) WATER COOLERS

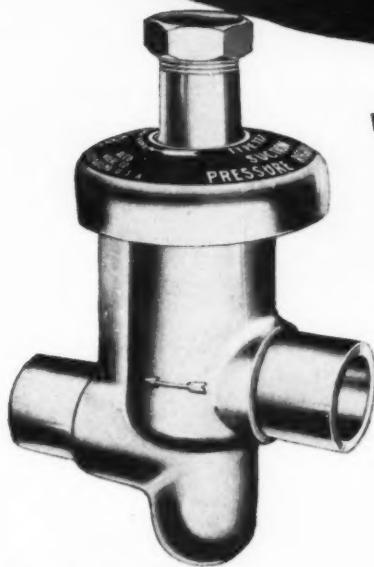
**COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO**

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# Save motor heat



## with ALCO SUCTION PRESSURE REGULATORS Types 771-772



Also available with  
1/8 S.A.E. connections.



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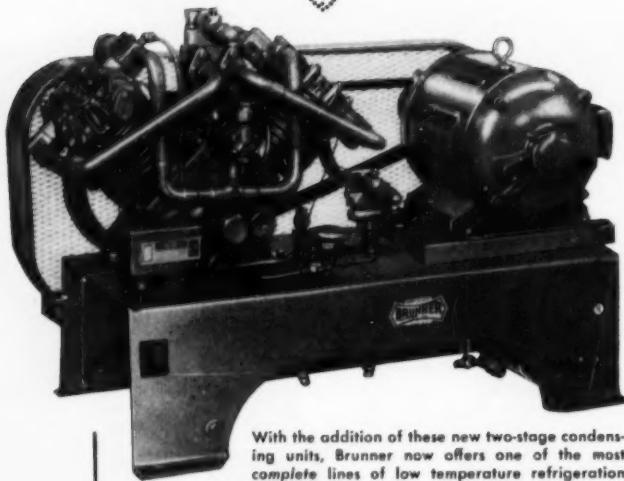
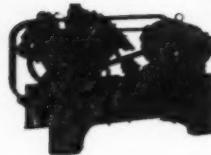
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and AIR CONDITIONING • JANUARY, 1953

why use two



when  one  will do ?



With the addition of these new two-stage condensing units, Brunner now offers one of the most complete lines of low temperature refrigeration in the industry!

**BRUNNER INTEGRAL 2-STAGE CONDENSING UNITS**  
**OPEN THE DOOR TO NEW PROFITS**  
**IN LOW TEMPERATURE APPLICATION**

Now — with these new 2-stage Brunner units — you can easily handle many low temperature applications that formerly required hookups of two or more condensing units! Designed for use with both F-12 and F-22 refrigerants, these new Brunner units have ratings as low as -100°. Ideal for use in cold test chambers, frozen food, metal processing and other applications where sub-zero temperatures are desired.

Naturally, the installation and maintenance costs of these 2-stage units are much lower than jobs using two connected single stage condensing units. Get all the facts today — see your Brunner representative — or write us.

Brunner Manufacturing Company    Dept. G-13, Utica, N.Y., U.S.A.



Brunner 2-stage condensing units are available in 15 models, ranging from:

**3 H.P. to 30 H.P.**

**YOU'LL ALWAYS BE GLAD YOU SOLD A**

**BRUNNER**  
SINCE 1906

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**JANUARY, 1953 • COMMERCIAL REFRIGERATION**

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THE REFRIGERATION INDUSTRY, this  
magazine has no official affiliation with  
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# COMMERCIAL REFRIGERATION & AIR CONDITIONING

JANUARY, 1953

VOLUME 10, NO. 1

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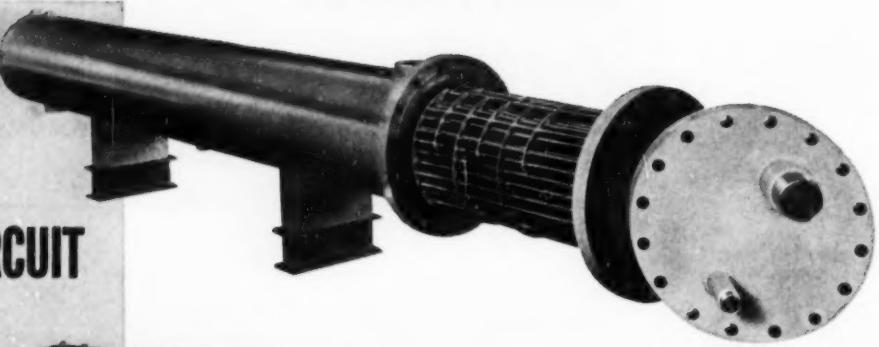
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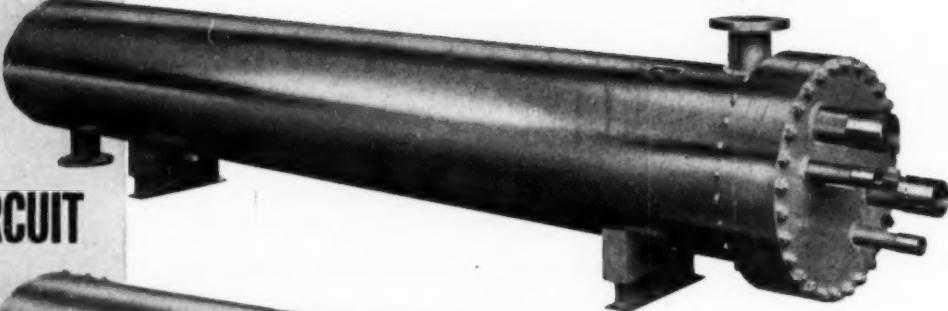
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1 CIRCUIT



2 CIRCUIT



3 CIRCUIT



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Here is the sure answer to the problem of fluctuating cooling loads—supplied by **p-k**. One, two or three circuit **p-k** Freon Coolers are specifically recommended to match your load. They are the practical, logical, economical answer to uniform cooling needs. Each type is designed to insure maximum heat transfer efficiency under the particular load conditions specified for the job. Regardless of weather conditions—hot, cold or

moderate—**p-k** Freon Coolers will constantly maintain optimum temperature differences and high refrigerating efficiency. For the best in value and dependable service—plus dependable operating efficiency—it will pay you to know all about **p-k** Freon Coolers. Write today for catalog No. 101 covering size ranges, engineering tables and other important data. Send for it now, for immediate use or later reference.

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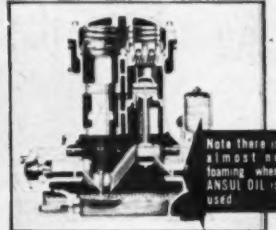
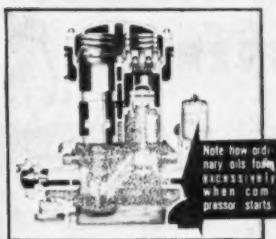
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...More Than Ever...  
THE FINEST REFRIGERATION OIL  
...at any price!

## ANSUL NON-FOAMING REFRIGERATION OIL

SEE THE DIFFERENCE BETWEEN  
ORDINARY OILS . . . WHICH FOAM  
... AND ANSUL NON-FOAMING  
REFRIGERATION OIL



When a compressor starts, the surge of the refrigerant causes ordinary oils to foam. This results in a loss of oil from the compressor and causes other harmful effects in the system. ANSUL NON-FOAMING OIL eliminates the problems which result from foaming and thereby insures maximum lubricating efficiency.

ANSUL WHOLESALERS are ready and equipped to render an intelligent, cooperative service to refrigeration service engineers on problems which arise, from time-to-time, in the operation of refrigerating systems.

NOW . . . MORE THAN EVER . . . ANSUL is the FINEST REFRIGERATION OIL at any price! In addition to the features which have made it outstanding in the past . . .

*High Lubricity, High Stability, Low Moisture, and Low Wax . . . a new and vital improvement has been made*

... ANSUL OIL IS NOW PROCESSED TO PROVIDE NON-FOAMING CHARACTERISTICS . . . a distinct advancement in the science of refrigeration lubrication.

Here are some of the advantages provided by the NON-FOAMING characteristic of ANSUL OIL:

- INSURES MAXIMUM LUBRICATION.
- IMPROVES EVAPORATOR EFFICIENCY.
- PREVENTS DAMAGE TO COMPRESSOR VALVES.
- REDUCES DANGER OF PLUGGED CAPILLARIES.
- REDUCES DEPENDENCY ON OIL SEPARATORS.

Ansul Refrigeration Oils have been machine tested for over 4500 consecutive hours.

ANSUL is the LARGEST SELLING REFRIGERATION OIL sold through Refrigeration Wholesalers . . . EXCLUSIVELY.



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REFRIGERATION DIVISION • MARINETTE, WISCONSIN

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*Chemical Company*

MANUFACTURERS OF REFRIGERANTS AND REFRIGERATION PRODUCTS, INDUSTRIAL CHEMICALS AND DRY CHEMICAL FIRE EXTINGUISHERS. — DISTRIBUTORS OF DU PONT "FREON" REFRIGERANTS

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and AIR CONDITIONING • JANUARY, 1953

## 3 big reasons why Hormel Freezer Plant insulated with Rubatex Insulation Hardboard

1. Reduces Operating Costs
2. Prevents Condensation Damage to Machinery and Food
3. Assures Low Temperature Control



# RUBATEX INSULATION HARDBOARD FOR BETTER REFRIGERATING PERFORMANCE!

In your design calculations for new freezer plants, cold storage rooms, military low temperature application, or converted portions of existing facilities to sharp freezer space — check these outstanding advantages of RUBATEX INSULATION HARDBOARD:

#### Physical Advantages

Light weight — 4½ lbs. per cubic foot. Excellent structural strength. Compressive strength — 60 lbs. per square inch. Rot, vermin and termite proof. Does not crumble or settle. Easy to handle. Standard board sizes — 17½" x 35½". Thicknesses 1", 1½", 2", 3".

#### Zero Moisture Pick-Up Advantages

Unique closed cellular structure shuts out moisture — resists deterioration — prevents condensation damage to machinery and food.

#### Low Heat Conductivity Advantages

Its thermal conductivity coefficient "k" is only 0.21 B. t. u. per hour, per degree Fahrenheit temperature difference, per square foot of area, per inch thickness. This low "k" factor remains constant.

#### Power Savings Advantages

Independent laboratory tests of Rubatex Insulation Hardboard vs other insulating material showed that Rubatex required only 53% as much power to maintain the required low temperature.

Add these advantages together and you have RUBATEX INSULATION HARDBOARD . . . an insulating material that pays for itself in money and BETTER REFRIGERATING PERFORMANCE!



Send for Design Data Bulletin RBH-1-50, Dept. CR-1, Great American Industries, Inc., Rubatex Division, Bedford, Virginia.



# NOW GREATER EASTERN SERVICE

From **GENERAL CONTROLS** **NEW SKOKIE, ILLINOIS PLANT**

Newest and largest extension of General Controls full factory facilities is the 60,000 square foot Skokie, Illinois manufacturing plant.

Minutes from Chicago and only hours from all points in the Midwestern, Mississippi basin and Eastern seaboard states, General Controls Skokie, Ill., will provide the following "home plant" services:

Manufacturing, assembly and warehousing of the full line of General Controls products • Complete factory reconditioning of General Controls equipment • The effectiveness of home factory facilities including expert field engineering.

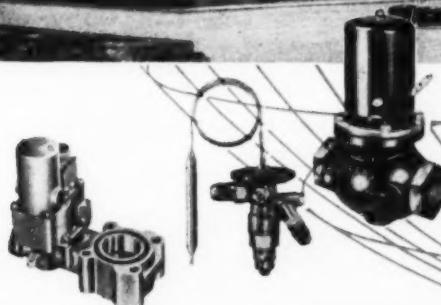
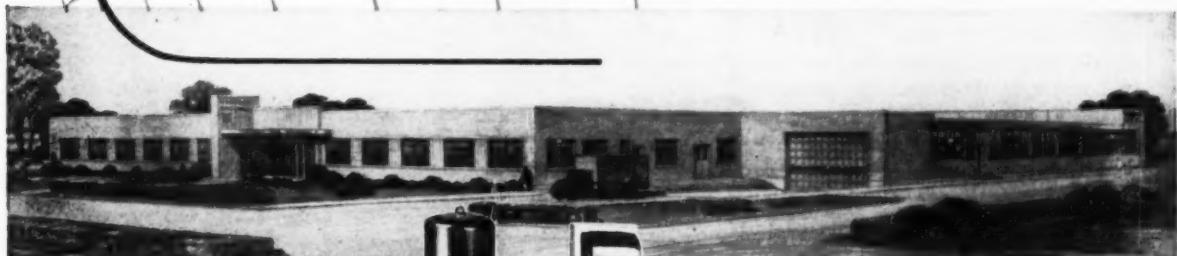
**GENERAL CONTROLS**

Glendale 1, California

Skokie, Illinois

FACTORY BRANCHES IN 32 PRINCIPAL CITIES

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY



The four products shown here are typical of the great variety made by General Controls to regulate pressure, temperature, level and flow for heating, home appliances, refrigeration and widely diversified industrial applications.

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# CLEANS...DRIES...PROTECTS REFRIGERATION SYSTEMS— better than ever before!

## BLUE STREAK DRYER

- ✓ check quality!
- ✓ check price!
- ✓ check trouble!



Processed Under Patent  
No. RE-22465

### PRICES AND SPECIFICATIONS

Part No.	Capacity Cu. In.	H.P. Rating	S.A.E. Fittings	Shell Diameter	List Price
609-F2	1	To $\frac{1}{8}$	$\frac{1}{4}$ SAE	$\frac{3}{4}$ "	\$1.60
610-F2	2	To $\frac{1}{4}$	$\frac{1}{4}$ SAE	1"	2.00
610-F2C	2	To $\frac{1}{4}$	$\frac{1}{4}$ SAE x Compression	1"	1.90
612-F2	4	To $\frac{1}{3}$	$\frac{1}{4}$ SAE	$1\frac{1}{2}$ "	2.30
612-F2F	4	To $\frac{1}{3}$	$\frac{1}{4}$ SAE x $\frac{1}{4}$ FE. SAE	$1\frac{1}{2}$ "	2.50
613-F2	6	$\frac{1}{2}$	$\frac{1}{4}$ SAE	$1\frac{1}{2}$ "	2.60
614-F2	9	$\frac{3}{4}$	$\frac{1}{4}$ SAE	$1\frac{1}{2}$ "	2.90
615-F2	12	1	$\frac{1}{4}$ SAE	2"	3.35
615-F3	12	1	$\frac{3}{8}$ SAE	2"	3.55
616-F2	18	$1\frac{1}{2}$	$\frac{1}{4}$ SAE	2"	3.95
616-F3	18	$1\frac{1}{2}$	$\frac{3}{8}$ SAE	2"	4.15
616-F4	18	$1\frac{1}{2}$	$\frac{1}{2}$ SAE	2"	4.35
617-F3	30	3	$\frac{3}{8}$ SAE	2"	5.35
617-F4	30	3	$\frac{1}{2}$ SAE	2"	5.55

Write for Your Free Copy  
of Catalog No. 531

YOUR WHOLESALER HAS BLUE STREAK DRYERS...try one on your next job!



FORGED FITTINGS • STRAINERS • OIL SEPARATORS  
CAPILLARY TUBES • SOLDER-TYPE DRYERS

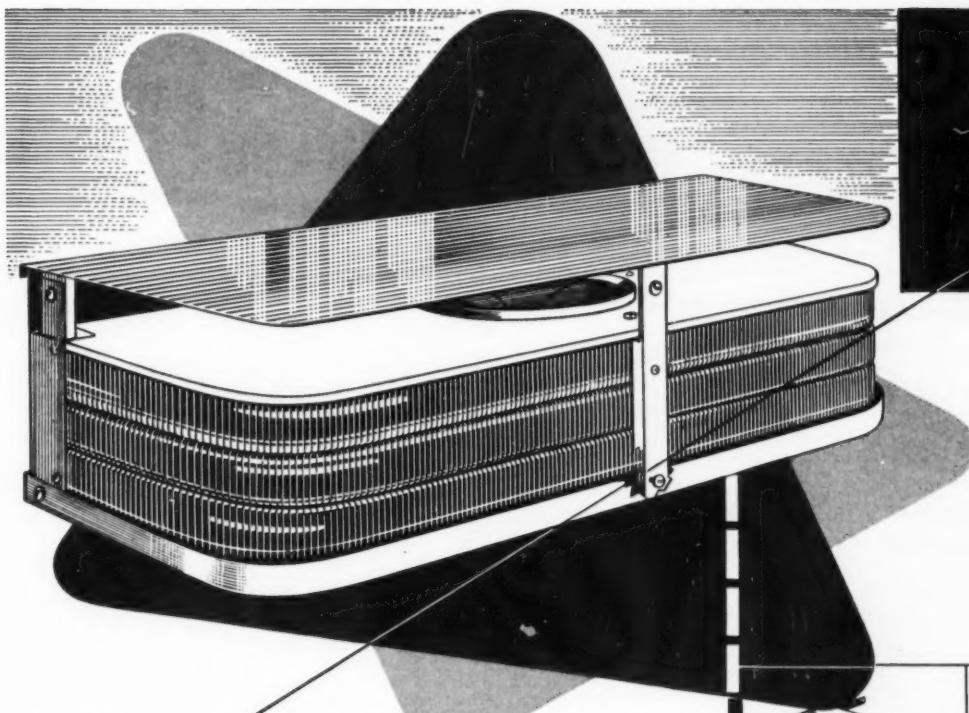
*Manufacturing Company*

2300 SOUTH WESTERN AVENUE • CHICAGO 8

EXPORT DIVISION: 13 East 40th Street, New York 16, New York, U. S. A.

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JANUARY, 1953 • COMMERCIAL REFRIGERATION



*This is a "D" nut  
a fine point of quality*

A small part . . . but an important one. Another assurance that Bush Unit Coolers are the finest available.

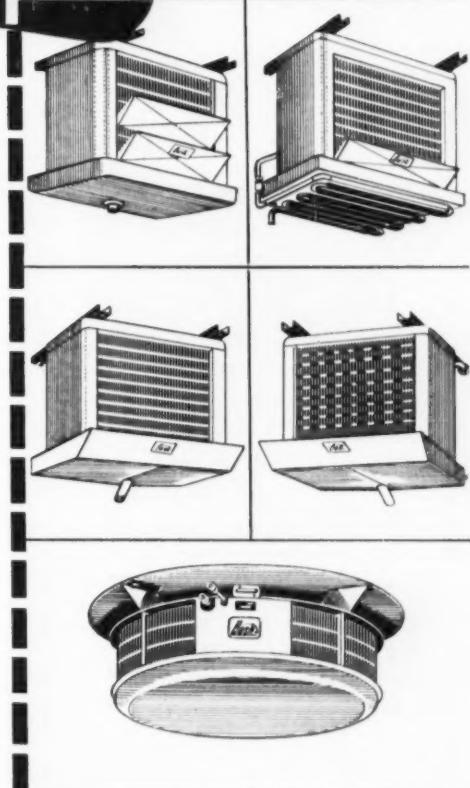
On ordinary unit coolers, sheet metal screws are used to join pan to case. Bush units are constructed with "D" nuts threaded to take small bolts. These "D" nuts are hydraulically riveted to the sheet metal. Result: a connection that doesn't loosen.

Remove the pan and replace it as often as you like. The connection will remain snug . . . free from annoying, noisy vibration.

The "D" nut . . . another fine point typical of Bush quality construction.

#### FEATURES OF BUSH UNITS:

- Modern Styling and Attractive Finish
- Rigid Case Construction
- Full Drain Pan on All Units
- Accurate Ratings . . . Insuring Economy of Operation, Proper Humidity Control
- Full, Deep Plenum Chambers
- Underwriters Laboratory Approval of All Units
- CJ and WJ Lines Feature Air DRAWN THROUGH the Coil Rather than Blown Out Across the Coil. This Eliminates Blowing Condensation from the Outer Edge of the Coil onto the Product or Box
- Heat Interchangers Furnished on Most Models



**BUSH MANUFACTURING COMPANY**

WEST HARTFORD 10, CONNECTICUT

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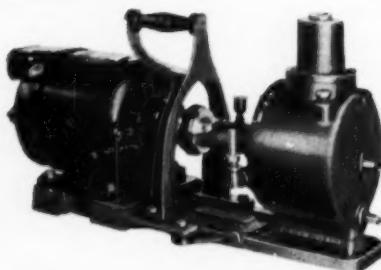
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# Designed Specifically for Dehydrating and Testing Refrigeration and Air Conditioning Units

## BEACH-RUSS PORTABLE VACUUM PUMPS

### The Service Man's Dream! MODEL O SINGLE STAGE PUMP

Can be carried anywhere. Specifically designed for the one job of providing a completely practical and portable vacuum pump for all field jobs where a vacuum of 1 mm. is adequate.



#### SPECIFICATIONS

Vacuum, blank flange—	1 mm.
Capacity—	1 CFM.
Horsepower—	1/6 HP.
Weight—	48 lbs.
Oiling—	Pump automatically lubricated.
Over-all length—	21".



#### SPECIFICATIONS

Vacuum, blank flange—	1/10 mm.
Capacity—	2.5 CFM.
Horsepower—	1/3 HP.
Weight—	80 lbs.
Oiling—	Pump automatically lubricated.
Over-all length—	21".

NOTE: All valves are eliminated in this model.

### For Higher Vacuum MODEL A TWO-STAGE PUMP

A completely portable two-stage pump for vacuum up to 1/10 mm. It is the only unit combining all the features desired by the air-conditioning and refrigeration service man . . . rugged, compact, light-weight, with extremely long life . . . and, above all, unusually high performance characteristics. It provides required two-stage operation in one small pump that eliminates complicated valves and adjustments.

Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

### BEACH-RUSS COMPANY 56 CHURCH ST., NEW YORK 7, N. Y.

Send descriptive literature covering

- Model O Single-Stage Vacuum Pumps.
- Model A Two-Stage Pumps.

We'd like to see the Beach-Russ engineer in our area .

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone No. \_\_\_\_\_ State \_\_\_\_\_

**BEACH-RUSS COMPANY**  
56 CHURCH STREET • NEW YORK 7, N. Y.

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**It's the LAW!**

by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which will appear periodically in the issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING, is no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pit'alls into which they otherwise might unwittingly stumble.

—The Editors

### DAMAGES FOR REMOVAL OF EQUIPMENT

The proprietor of a slaughter house in North Dakota purchased refrigerating equipment, later became bankrupt and the equipment was sold by the bankruptcy trustee. When the owner of the premises on which this slaughter house was located leased the property to other tenants, the purchaser of this equipment from the bankruptcy trustee removed it from the building in which it had been installed.

The owner of the land claimed that the equipment when it was installed in this building, had become a part of the real estate and sued this purchaser from the trustee for the damages occasioned by its removal.

The court held that this property was a part of the building and that the purchaser liable in damages to the owner of the land for its removal. "Property fixed to the land of another without an agreement permitting its removal belongs to the owner of the land."

*Gussner v. Mandan Creamery & Produce*

Co., 51 N.W. 2d 352, North Dakota.

### BUYING BY DESCRIPTION

THE OWNER of a Maine meat market contracted for the purchase of a freezer display case for his store. The contract was in the form of a printed order to be signed by the buyer and accepted by the seller for a "No. 110 \* \* freezer display case," with a down payment and the balance in monthly instalments, title to remain in the seller until fully paid and the further stipulation that the con-

IF YOU WERE Your Prospect

## which tag would sell



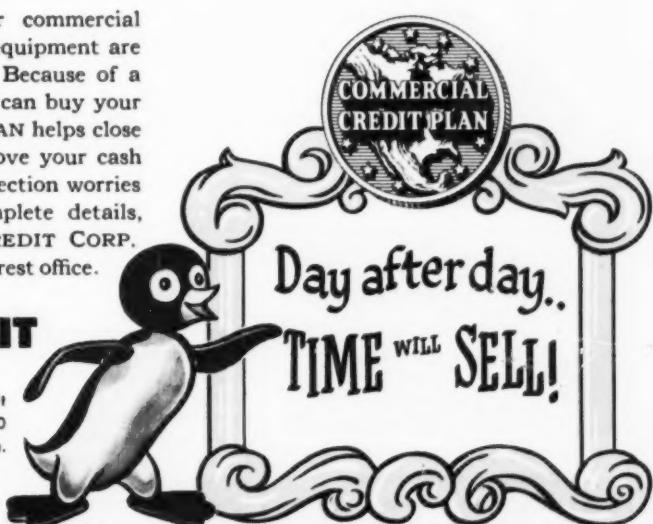
Feature Time Payments to close more sales

with the COMMERCIAL CREDIT PLAN

MORE AND MORE prospects for commercial refrigerating and air conditioning equipment are becoming, of necessity, TIME BUYERS. Because of a tight cash position it's the only way many can buy your equipment. The COMMERCIAL CREDIT PLAN helps close sales . . . lower accounts receivable, improve your cash position. And you turn your credit and collection worries over to COMMERCIAL CREDIT. For complete details, facts and figures, write COMMERCIAL CREDIT CORP., 14 Light Street, Baltimore 2, Md., or our nearest office.

### COMMERCIAL CREDIT CORPORATION

A service offered through subsidiaries of Commercial Credit Company, Baltimore... Capital and Surplus over \$125,000,000...offices in principal cities of the United States and Canada.



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On-the-spot  
sales and  
installation  
helps from  
**BENDIX-FRIEZ**



## HUMIDITY AND TEMPERATURE RECORDERS

Selling and installing air conditioning, refrigeration and heating equipment is much easier with the help of modern tools like these. First, they give the prospect *visible proof* that he has a need for temperature and humidity control. Then, after the sale, they give *visible proof* that his installation is working properly. You can rely on Bendix-Friez instruments—products of the world's oldest, largest manufacturer of precision weather instruments.

### BENDIX-FRIEZ PORTABLE TEMPERATURE AND HUMIDITY RECORDER

Model 160



Furnishes easy-to-read 3" x 5" charts good for 10 or 30 hour records. As easy to carry as a camera. Built to U. S. Weather Bureau standards.



### BENDIX-FRIEZ MOTOR- ASPIRATED PSYCHROMETER

Model 573

This handy instrument provides fast, accurate humidity readings. Requires no special skill to operate. Ideal for taking readings in confined areas.

FIND OUT TODAY HOW BENDIX-FRIEZ PRECISION INSTRUMENTS CAN HELP YOU

### FRIEZ INSTRUMENT DIVISION OF



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Baltimore 4, Maryland

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tract contained all the agreements between the parties.

The buyer paid the first two installments as they became due and then, over two months after the freezer had been delivered and installed, he wrote the seller he would make no further payments as the case was not as represented by the salesman.

When suit was brought later by the seller to collect the unpaid balance on this account the Maine court, deciding in favor of the buyer said,

"It is not claimed that there was an implied warranty of quality or fitness. Indeed, none could be claimed under the stipulation of the written contract that it contained all the agreements of the parties. The contract was to furnish a known, described and definite article, viz., a "No. 110 \* \* freezer display case," and was not an order to supply or manufacture an article for a particular purpose, where the selection or design of the article is left to the seller or manufacturer.

The buyer by his written order selected his own type, a "No. 110." If he received that article he cannot complain if it proved unsuitable or insufficient, there being no warranty. If the buyer desired assurance of quality or fitness he should have demanded a warranty of the seller."

*Lasher Co. v. LaBerge*, 135 Atl. 31, Maine

### FITNESS OF REFRIGERATOR FOR PURPOSE INTENDED

THE OPERATORS of a cold storage plant in Wisconsin were in the market for refrigerating machinery adequate for freezing and storing a half million smelt. A manufacturer assured the owners of this plant that he could furnish equipment adequate for their purpose.

The contract for the purchase and installation of this freezer was signed and contained the provision, "We guarantee first class material and workmanship for one year from the date when the equipment is first put in operation. In the event that material furnished by us shall prove to have been defective at the time it was furnished, natural wear and tear, misuse and accident excepted, we agree to repair or furnish a duplicate of any such part free on board cars at factory within such period.

"No liability shall attach to us, however, for damages or delays caused by defects, beyond making such repairs or furnishing duplicate parts, nor shall we be liable for any defective material repaired or replaced without our consent."

This limited guarantee was supplemented with the clause, "This document contains the entire proposed agreement between the parties hereto. It is understood that there are no agreements, promises or understandings other than those incorporated in this proposal in printed or written form."

When 78,000 pounds of fish had spoiled by the failure, according to the claim of the plant owners, of this equipment to operate properly, they refused to make further payments and set up these dam-

ages as a counterclaim in their defense to the action brought by the seller for the balance due on the contract.

In its decision that the owners of the refrigeration plant were not entitled to these damages the Supreme Court of Wisconsin said,

"By the great weight of authority as it appears to us, where the contract itself contains a disclaimer of any warranties other than those specifically set forth in the writing, or a statement that the writing contains the entire contract between the parties, oral warranties based on representations made during the negotiations may not in the absence of fraud be admitted, and even implied warranties are excluded.

"The disclaimer clause in this case does not specifically exclude other warranties but it does provide that the writing contains all of the agreements between the parties and that there are no other understandings or promises." *Valley Refrigeration Co. v. Lange*, 8 N.W. 2d 294

### NOT RESPONSIBLE FOR BAD ICE

AN ICE MACHINE manufacturer in Pennsylvania, to adjust a dispute with a customer, made an agreement to deliver the buyer at Fall River in Massachusetts a 20-ton evaporating apparatus and the buyer on his part to return to the manufacturer the portion of the plant previously installed which this apparatus replaced.

The buyer further agreed that he would pay the manufacturer \$1,500 in one month unless within that time he notified the manufacturer that the apparatus had failed to operate as guaranteed and asked for its removal.

The buyer did not do so but later when the manufacturer sued to recover this \$1,500 he claimed the machine produced an inferior quality of ice.

The Massachusetts court, holding this to be no defense, said, "The seller did not guarantee that the apparatus would furnish merchantable ice free from impurities and odors or that it would work satisfactorily in connection with the ice making plant already installed.

"All that the seller was required to do was to deliver the apparatus, and thereupon the buyer became bound to pay the seller \$1,500 in one month unless it turned out that the apparatus was not of 20-ton capacity or unless it notified the seller that the apparatus failed to accomplish the results guaranteed and requested its removal."

*Pennsylvania Iron Works Co. v. Hygeian Ice & Cold Storage Co.*, 70 N.E. 427, Massachusetts.



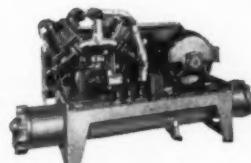
# ONE OF THE MOST COMPLETE LINES IN THE INDUSTRY

# NEW improved *Curtis* CONDENSING UNITS at NEW, LOW PRICES

*All with these  
Famous Curtis  
Features:*

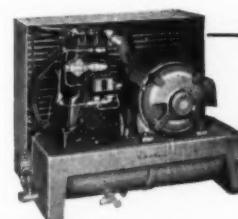
- TIMKEN TAPERED ROLLER BEARINGS
- POSITIVE LUBRICATION
- OIL LEVEL SIGHT GLASS
- SLOW SPEED OPERATION FOR LONG LIFE AND HIGH EFFICIENCY

*plus a complete  
line of packaged  
units in six sizes  
2-3-5-7½-10-15-H.P.*



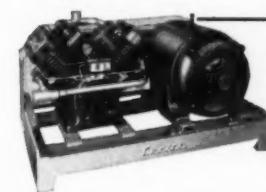
## WATER COOLED CONDENSING UNIT

Low, Regular and High Temp., from  $\frac{1}{3}$  H.P. to 50 H.P.



## AIR COOLED CONDENSING UNIT

Self-contained, remote, truck type, from  $\frac{1}{4}$  H.P. to 3 H.P.



## COMBINATION AIR AND WATER COOLED CONDENSING UNIT

Plenty of reserve capacity for extreme hot weather. Operates primarily as air cooled unit with shell and coil condenser as auxiliary in case of overload. From  $\frac{1}{3}$  H.P. to 3 H.P.



## COMPRESSOR UNITS

For use with evaporative condensers, low temperature cooling, processing and air conditioning installations, from 3 H.P. to 50 H.P.

SEE this New CURTIS line  
at the International Heating  
and Ventilating Exposition—

INTERNATIONAL  
AMPHITHEATRE  
Chicago, Illinois  
January 25-30, 1953  
BOOTHES: 234, 236,  
238, 335, 337, 339



For Immediate Information—Use This Coupon

728  
CURTIS REFRIGERATING MACHINE DIVISION  
of Curtis Manufacturing Company

1915 KIENLEN AVENUE, ST. LOUIS 20, MISSOURI

I am interested in direct factory franchise. Send complete details.

COMPANY NAME \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_

SIGNED \_\_\_\_\_

# HENRY

## LINE VALVES really give you something extra

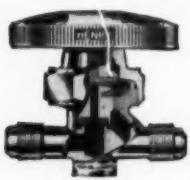
They give more dependable service because of advanced field-proven design and construction as well as patented features.

**PACKLESS VALVES**  
FOR FREON  
with Exclusive  
Balanced-Action



### STANDARD TYPE

Ball check in balancing channel permits diaphragm inspection and replacement with valves under line pressure. Sizes,  $\frac{1}{4}$ " thru  $\frac{5}{8}$ " flare;  $\frac{1}{4}$ " thru  $1\frac{1}{8}$ " O.D. Solder,  $\frac{1}{4}$ " thru 1" F.P.T.



### BLUE BANTAM TYPE

Same as standard Balanced-Action valve except that diaphragms cannot be inspected or replaced under line pressure. Size  $\frac{1}{4}$ " thru  $\frac{5}{8}$ " flare and O.D. Solder.

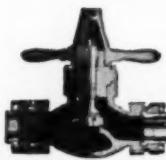
**PACKED VALVES**  
FOR FREON  
Bronze-Wing  
Cap Type



Globe and angle types with solder connections, bolted bonnets, sizes  $\frac{1}{2}$ " thru  $5\frac{1}{8}$ " O.D.

### SEMI-STEEL WING CAP TYPE

With bolted bonnets and square companion flanges. Furnished with brass tailpieces (O.D. Solder)  $1\frac{1}{8}$ " thru  $5\frac{1}{8}$ " or with steel tailpieces for welding to pipe, sizes  $1\frac{1}{4}$ " thru 5".



Also Globe and angle types with F.P.T. connections, sizes  $\frac{1}{2}$ " thru 2".

**PACKED VALVES**  
FOR AMMONIA  
Permanent-Mold Iron  
and Semi-Steel



Compact and strong with self-aligning stem disc. Sizes (F.P.T.), screw bonnet:  $\frac{1}{4}$ " thru 1", bolted bonnet  $1\frac{1}{4}$ " thru 2"—with flange connections  $1\frac{1}{4}$ " thru 5".



HENRY—Standard equipment by leading Manufacturers, Army, Navy, Coast Guard and Maritime Commission • Stocked by Leading Jobbers  
WRITE FOR CATALOGS

## HENRY VALVE CO.



Valves—Driers—Strainers—Control Devices and Accessories for  
Refrigeration, Air Conditioning and Industrial Applications

MELROSE PARK, ILL. (CHICAGO SUBURB)

CABLE: HEVALCO, MELROSE PARK, ILLINOIS

Circle No. 14 on Reader Service Card for more information

JANUARY, 1953 • COMMERCIAL REFRIGERATION



#### NEW MODEL 950

Double feature. Self-contained freezer. King Size power. Two complete freezers in one stand. Each unit operates independently. Every portion perfect. Seven gallon mix storage, refrigerated. 36" wide, 24" deep, 65" high.

#### Exclusive FREEZ-KING Features

- Patented Automatic Feed
- Seeing Eye Dial
- Automatic Temperature Control
- Patented Back Feed
- Spigot or draw-off gate on all models

All parts easily and quickly accessible for cleaning. Amazingly simple to operate. Gleaming, streamlined beauty in every model.



Model 410 for  
drive-in or busy  
retail merchant.  
Size 32" x 20" x  
66". 3½ gal. re-  
frigerated.



Models 500-600.  
Drive-in capacity out-  
put. Counter or floor  
models. 3½ gallon  
refrigerated mix.



#### America's Most Complete Line of

#### Continuous Soft Ice Cream Freezers



Model 403.  
Counter model.  
Space econo-  
mizer. Capac-  
ity depends on  
size of remote  
compressor.  
24" x 18" x 32".

Models 900-  
900A - 900B.  
Self-contained.  
Low priced  
economy  
model. Size  
24" x 18" x  
68". 3½ gallon  
ref. mix com-  
partment.

DISTRIBUTORS! EXCLUSIVE FRANCHISE AVAILABLE. WRITE FOR DETAILS.

**THE FREEZ-KING CORPORATION**  
2518 WEST MONTROSE AVENUE, CHICAGO 18, ILLINOIS

# help yourself

to more sales,  
more profits

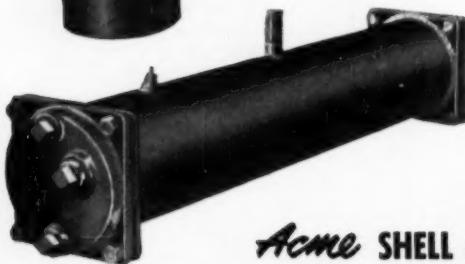
with *Acme* products

Increase your share of the air conditioning, temperature and humidity control market by selling Acme "Tailored to Fit" equipment. Versatile, sturdy, economical, easy to install Acme products help you help yourself. No matter the application, Acme has a standard unit to fill the need. Sell Acme and you solve most of your installation problems. Acme quality equipment is recommended and stocked by your jobber.



### *Acme* FREON OIL SEPARATORS

There are 6 models of Acme Freon Oil Separators to meet all installation requirements from  $\frac{1}{4}$  h.p. to 10 h.p. Maximum separation is assured through low gas velocity and special filter cartridges. Seamless steel tubing and baffles that are steel welded to the cover plate assure a doubly long life for these units. The best is cheapest in the final analysis.



### *Acme* SHELL and TUBE CONDENSERS

The J line of Acme condensers have capacities ranging from  $\frac{1}{2}$  to 25 tons, and are compact in size to make them ideal for moderately priced installations. Extensively used by original equipment manufacturers the J line has these advantages: extended tube surface, easily cleanable, cast iron water heads "through bolted" to the tube sheet, and sheets welded to the condenser shell.



### *Acme* SUCTION LINE HEAT EXCHANGERS

Available in 3 to 200 ton capacities, the Acme HX Heat Exchangers are easy to install and increase overall system efficiency. The new design features the extended bar type fin surface, making possible a gas to liquid side area ratio of 13 to 1. An extremely low pressure drop provides maximum gains for any desired super heating effect and lessens the danger of liquid slop-over to the compressor and of flash gas at the control valve.



### *Acme* SHELL and COIL CONDENSERS

For inexpensive, efficient condensers, Acme shell and coil units are recommended. Compact, sturdily constructed, they are chemically cleanable by circulating fluid through the water passages. All models furnished with integral fin copper tubing. These units are ideal for either initial or replacement use and range in capacity from  $\frac{1}{2}$  to 5 tons.



**ACME INDUSTRIES, INC.**

Flow Cold Division

JACKSON, MICHIGAN, U.S.A.

CONTINUOUSLY SERVING THE AIR CONDITIONING AND REFRIGERATION INDUSTRIES SINCE 1919

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JANUARY, 1953 • COMMERCIAL REFRIGERATION

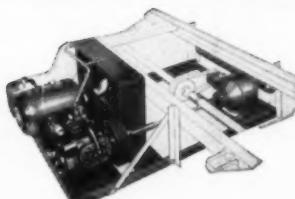
# KOLD-HOLD truck refrigeration WILL PAY FOR ITSELF!

How would you like to finish an entire season without loss from spoilage? Every time you incur a spoilage loss you are taking a trimming . . . you're scraping profits into the garbage pail.

Actually you're paying for Kold-Hold truck refrigeration now . . . why not enjoy its advantages? You not only save spoilage losses, but your trucks can make longer hauls. They can carry a full day's load to save time and manhours and make trips more profitable. Full flavor is retained so that you assure complete customer satisfaction. These benefits mean that dependable Kold-Hold truck refrigeration will pay for itself.

For example, one user reports: "Kold-Hold has saved us \$10,500 in less than six months."

## KOLD-HOLD can answer any refrigeration problem!



KOLD-TRUX

Which do you prefer . . . Mobile or Hold-Over truck refrigeration? Kold-Hold can give you either or a combination of both.

When your weather worries start, pick out the routes with the biggest refrigeration problems and call on Kold-Hold to give you a satisfactory solution. They will give you the right combination for your needs from such highsides as the Kold-Trux Mobile Unit, a mounted compressor, or make-and-break assemblies, coupled to such lowsides as Kold-Hold Hold-Over Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers.

Why not give us the details of your problems and let our engineers find the most efficient solution for you. Write today for details.



*Tell us your truck refrigeration problems and send now for complete data and literature.*



HOLD-OVER PLATES

# KOLD-HOLD

# Servel SUPERMETIC

FOR EVERY COMMERCIAL REFRIGERATION AND AIR CONDITIONING NEED...

**Servel**  
ELECTRIC REFRIGERATION DIVISION  
EVANSVILLE 20, INDIANA

$\frac{1}{4}$  —  $\frac{1}{2}$  —  $\frac{1}{2}$  HP MODELS  
Air Cooled  
Medium or low temperature

$\frac{1}{4}$  —  $\frac{1}{2}$  HP MODELS  
Water Cooled  
Medium or low temperature

$\frac{1}{4}$  —  $\frac{1}{2}$  —  $\frac{1}{2}$  HP MODELS  
Air Cooled  
Medium or low temperature

1 —  $1\frac{1}{2}$  — 3 HP MODELS  
Air Cooled  
Medium or low temperature

$\frac{1}{2}$  HP MODELS  
Water Cooled  
Medium or low temperature

1 —  $1\frac{1}{2}$  — 2 HP MODELS  
Water Cooled  
Medium or low temperature

3 HP MODELS  
Water Cooled  
Medium or low temperature

Low-cost factory  
warranty available  
on all current models

Compact Power Units for  
High Temperature Applications  
 $\frac{1}{2}$  to 5 HP MODELS

WRITE TODAY FOR  
NEW CATALOG NO. 53  
—Just off the press

Servel  
SUPERMETIC

Condensing  
Units

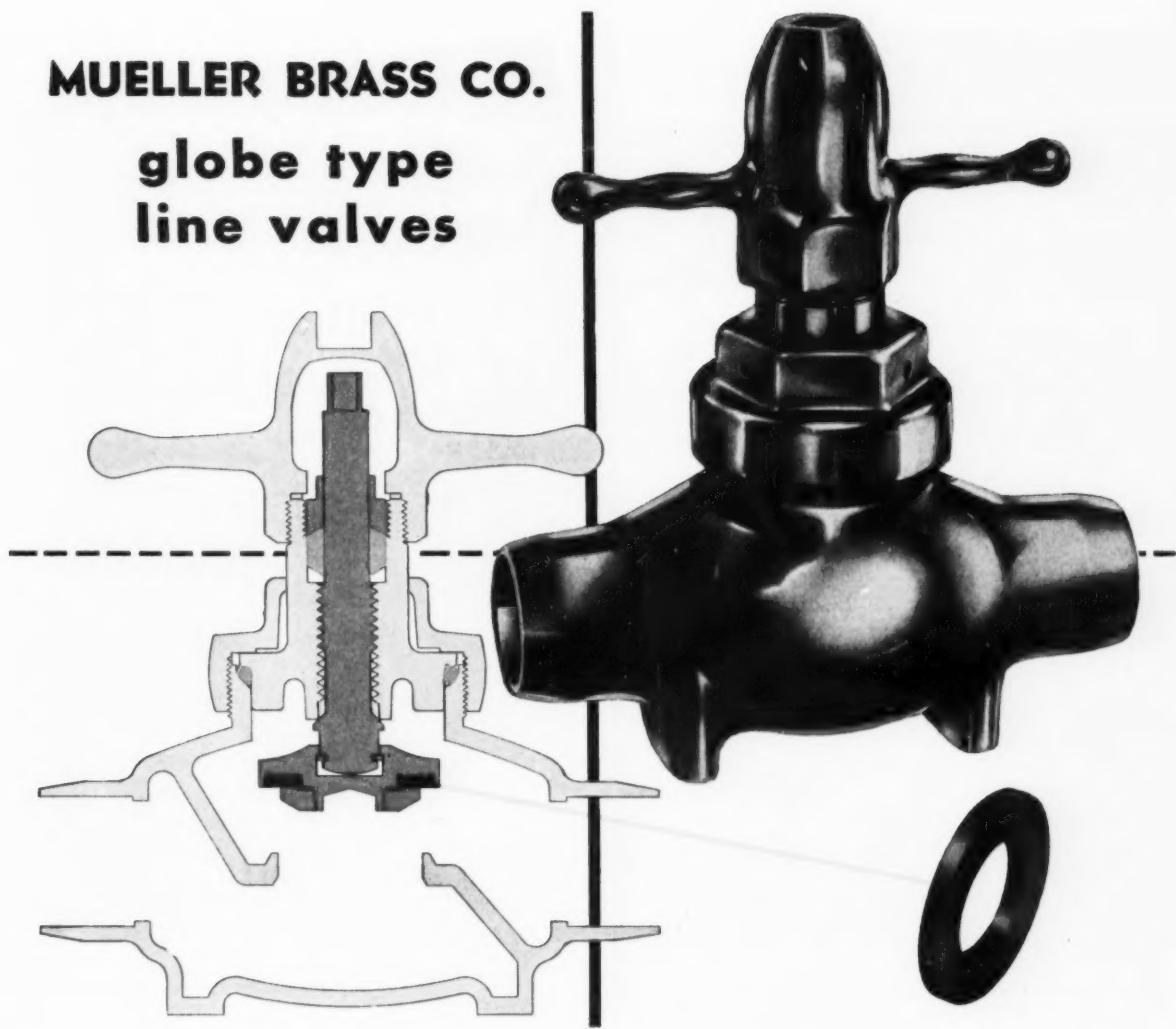


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JANUARY, 1953 • COMMERCIAL REFRIGERATION

# MUELLER BRASS CO.

## globe type line valves



Mueller Brass Co. Globe type line valves, developed after long research and proved under the most severe operating conditions, are designed and built for quick, easy installation and long, satisfactory service.

The superiority of the nylon stem disc has been proved in thousands of tests in both laboratory and field. It's resilient, tough, and can't be beat for refrigeration valve seating. This disc shuts off the flow perfectly and easily . . . even when foreign materials get lodged against it. The stem is the back-seating type . . . providing double seal protection.

A Neoprene "O" ring between the bonnet and the valve body provides a positive seal regardless of the range of temperatures and pressures. As the union collar is tightened, the ring is compressed until its shape in cross-section is triangular, which utilizes both the "O" ring and gasket principle to provide an effective and permanent seal.

The non-porous cast bronze body is polished to a high lustre that makes an attractive installation in any system.

*Write for our latest catalog describing the complete line of Mueller Brass Co. STREAMLINE products.*

DRIERS AND FILTERS



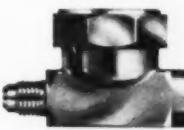
WROUGHT COPPER FITTINGS



FLARE FITTINGS



LIQUID INDICATORS



VALVES



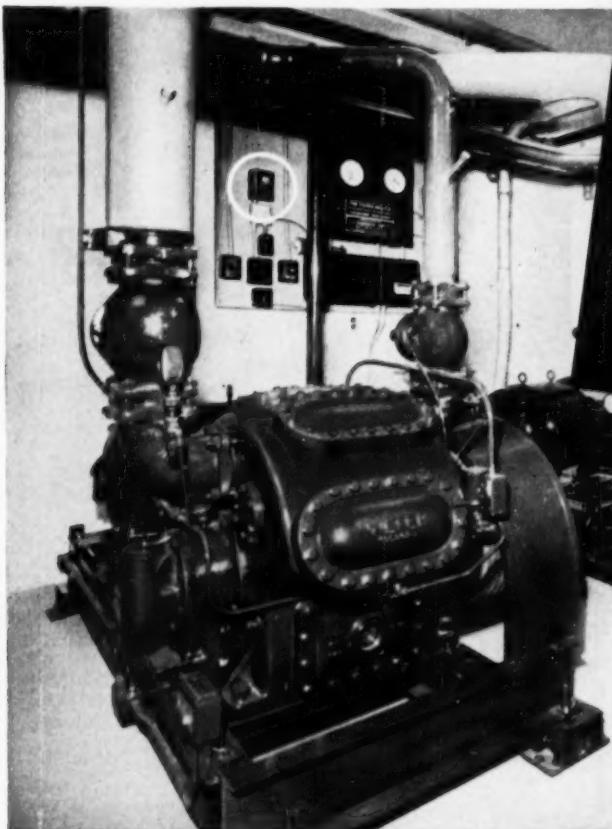
MUELLER  
BRASS  
CO.  
STREAMLINE  
PRODUCTS

**MUELLER BRASS CO. PORT HURON 10, MICHIGAN**

Circle No. 19 on Reader Service Card for more information  
and AIR CONDITIONING • JANUARY, 1953



Two Vilter VMC Freon Compressors, installed in a Kansas City bank, equipped with Allen-Bradley trouble free Solenoid Starters.



**VILTER**  
**COMPRESSOR UNITS**  
*equipped with*  
**ALLEN-BRADLEY**  
**TROUBLE FREE**  
**MOTOR CONTROLS**



Why are Allen-Bradley automatic starters so popular for refrigeration and air-conditioning service? . . . Because they are trouble free. Only ONE moving part. No pivots, pins, or bearings to corrode or stick . . . no jumpers to break. You install them . . . and forget them!

No contact maintenance . . . Allen-Bradley cad-

mium silver alloy contacts never need cleaning, filing, or dressing.

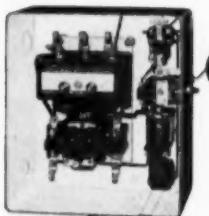
Dependable overload relays . . . Allen-Bradley thermal relays are accurate and always dependable . . . even after long service.

The Allen-Bradley trademark stands for millions of trouble free operations.

Allen-Bradley Co., 1340 S. Second St., Milwaukee 4, Wis.

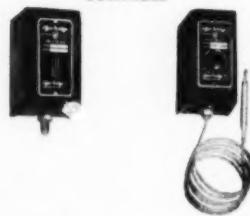
#### Typical Refrigeration Controls

SPECIAL REFRIGERATION CONTROL UNITS



The two units above show Allen-Bradley special refrigeration control units consisting of Solenoid Starter, High Pressure Cutout, Thermostat, and Manual Starting Switch. Size 2 Unit at left, Size 1 Unit at right.

PRESSURE AND TEMPERATURE CONTROLS



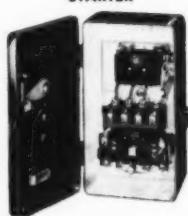
A-B Bulletin 836 Pressure Control and A-B Bulletin 837 Temperature Control. Accurate, rugged, compact units.

AUTOMATIC STARTER



A-B Bulletin 709 Solenoid Starter. Note white interior.

COMBINATION STARTER



A-B Bulletin 712 disconnect switch type combination starter. Saves installation time.

## ALLEN-BRADLEY SOLENOID MOTOR CONTROLS

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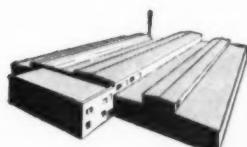
JANUARY, 1953 • COMMERCIAL REFRIGERATION

No. 3 of a Series of 12 Advertisements

# Good Men to Know!



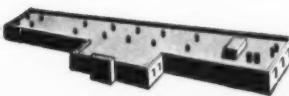
**TED STIKELEATHER**  
Factory Representative East-Central Territory  
serving you through these  
reputable wholesalers



Plant 1—1600 Broadway N.E.  
Minneapolis 13, Minn.



Plant 2—1729 Broadway N.E.  
Minneapolis 13, Minn.



Plant 3—4th and Park Ave.  
Faribault, Minn.

# McQuay INC.

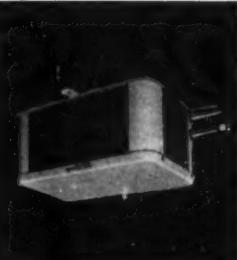


REFRIGERATION  
HEATING  
AIR CONDITIONING

MANUFACTURERS OF HEAT TRANSFER EQUIPMENT SINCE 1923  
Circle No. 21 on Reader Service Card for more information  
and AIR CONDITIONING • JANUARY, 1953



**CHARLES R. CHAMBERS**  
Mutual Mfg. & Supply Co.  
Cincinnati, Ohio



**LARRY WILLEMBERG**  
Square Deal Supply Co.  
Indianapolis, Indiana



**PAUL H. HOPPER**  
Mgr. Refrigeration Dept.  
The W. H. Kiefer Co.  
Dayton, Ohio



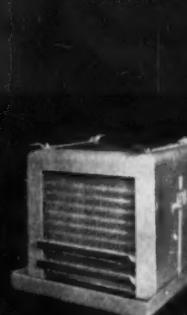
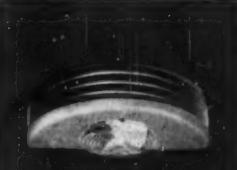
**ED HINER**  
Hiner Refrigeration Supply Co.  
Charleston, West Virginia



**JACK SHELLHAMER**  
Louisville Mill Supply Co.  
15th and Madison  
Louisville, Kentucky



**CLAUDE A. BRUNTON**  
Mechanical Refrigeration Supply Co.  
Huntington, West Virginia



## CONSULT YOUR McQUAY WHOLESALER FOR EVERY REFRIGERATION NEED

McQuay is proud of its complete line of *proved and preferred* refrigeration equipment and of the men who represent the company to you. There is a McQuay wholesaler in your territory, qualified by long experience and backed by the entire McQuay sales and engineering organization, who can give you the right answer to your specific problem — whether it's selling help, technical advice or quick action you want. Consult your McQuay wholesaler or write McQuay, Inc., 1643 Broadway N.E., Minneapolis 13, Minn.

# **Low cost safety P R E V E N T S High priced damage**



## PROTECTION AGAINST REFRIGERANT LOSS

## PROTECTION TO REFRIGERANT SYSTEMS

Refrigeration and air conditioning systems need protection from over-pressure . . . for two good reasons: To guard against refrigerant loss—and to prevent damage to equipment. The BS&B Sealed Type Safety Head is designed to give you this protection. It's a pressure relief device guaranteed to be leak-proof. This low-priced, "throw-away" unit is simple and tamper-proof . . . consists of brass flanges and silver rupture disc. This disc is designed to rupture at a pre-determined pressure. When this happens just install a completely new fitting, easily and quickly. There are thousands of BS&B Safety Heads in use for primary or secondary relief. They're available in a variety of pressures and inlet-outlet connections.

**WRITE FOR FREE DESCRIPTIVE  
LITERATURE AND PRICES**

# BLACK, SIVALLS & BRYSON, INC.

**Safety Head Division, Dept. 2-BU1**



Circle No. 22 on Reader Service Card for more information

JANUARY, 1953 • COMMERCIAL REFRIGERATION

## Smart New St. Louis Store Controls Its Air-Conditioning



## SOLENOID VALVES

One of the most outstanding of the many ultra-modern buildings in St. Louis' exclusive Clayton suburb is the women's specialty shop—"Kline's west." It is the last word in attractiveness, comfort, and efficiency.

"Kline's west" is air-conditioned with Carrier equipment, installed by Sears & Piou, contractors and engineers. J-E Solenoid Valves control the refrigerant flow to the individual coil sections, thus providing maximum economy and flexibility of operation.

### ALL JE Solenoid Valves Have these 5 Major Features of Dependability:



1. Tight Seating—no bubble tolerance.
2. Simplicity—only two moving parts.
3. Long Life—cool coils.
4. Durability—all corrosion-resistant material.
5. Opening Pressure Differential—higher than most others on the market.

See your local refrigeration wholesaler, or write us today for details

Unconditionally Guaranteed  
FOR 18 MONTHS

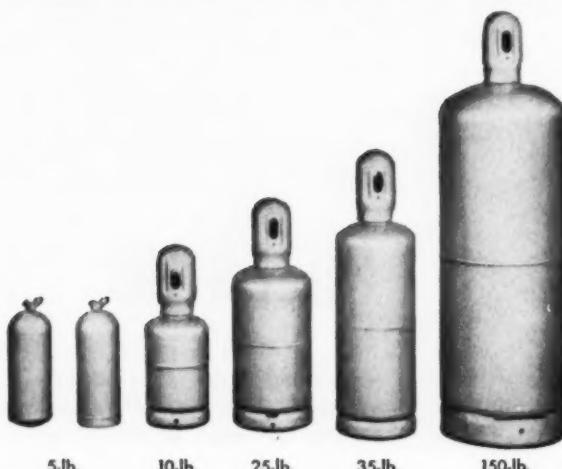
JACKES-EVANS MANUFACTURING COMPANY  
CONTROLS DIVISION  
4427 GERALDINE AVE. • ST. LOUIS 15, MISSOURI

**DON'T  
SETTLE  
FOR LESS**

**use**

**Prest-O-Lite**  
Trade-Mark

**CYLINDERS FOR  
REFRIGERANTS**



- ✓ Rugged, sturdy construction
- ✓ Uniform sidewall thickness
- ✓ Lightweight—easy to handle
- ✓ Finest workmanship
- ✓ Best appearance
- ✓ Tested far beyond all codes
- ✓ Extra years of trouble-free life
- ✓ They're economical!

You are *sure* that your refrigerant gas containers will give you many years of dependable service—and save you extra dollars—when you own PREST-O-LITE cold-drawn cylinders. They're built by the company which has been the largest manufacturer and *user* of compressed gas cylinders for almost half a century. In each step of design and fabrication the ultimate in gas containers is achieved—and this skill and experience is passed on to you with every PREST-O-LITE cylinder you get. It's no wonder that refrigerant cylinder buyers who have compared feature for feature have found out they are getting the greatest value with top-quality PREST-O-LITE cylinders.

Available in sizes ranging from 5-lb. to 150-lb. capacities—with valve, and cap on all but 5-lb. styles. A few of the popular squat-type cylinders are shown above. You'll like their good-looking appearance, with glossy metallic bronze finish. **WRITE TODAY** for full information and prices—select the PREST-O-LITE cylinder that fits *your* needs exactly.

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

**MADE BY**

**Linde**

**LINDE AIR PRODUCTS COMPANY**

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street **UCC** New York 17, N. Y.

Offices in Other Principal Cities

In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

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**JANUARY, 1953 • COMMERCIAL REFRIGERATION**

# 3 New SPORLAN

## PEAK PERFORMERS

in 2-3 Ton Capacities Freon 12 are

*..the New E..B and..U*

THERMOSTATIC EXPANSION VALVES



They're smaller!

They're perfect for even the most compact self contained units.

They'll Save You Money on either initial or replacement installation costs.

The new sizes incorporate the identical basic construction features which have identified Sporlan Peak Performance Thermostatic Expansion Valves throughout the years.

Type E supersedes Type F

Type B supersedes Type L 5/32 and 3/16 port sizes

Type U supersedes Type O 5/32 and 3/16 port sizes

Available in nominal capacity ratings of 1 to 3 tons

F-12, 1 1/2 to 5 tons F-22.

See your Sporlan wholesaler today and get acquainted with these 3 new Sporlan Thermostatic Expansion Valves . . . THEN . . . Buy Sporlan right down the line and get Peak Performance on all installations.

**SPORLAN VALVE COMPANY**  
7525 SUSSEX AVENUE  
ST. LOUIS 17, MISSOURI

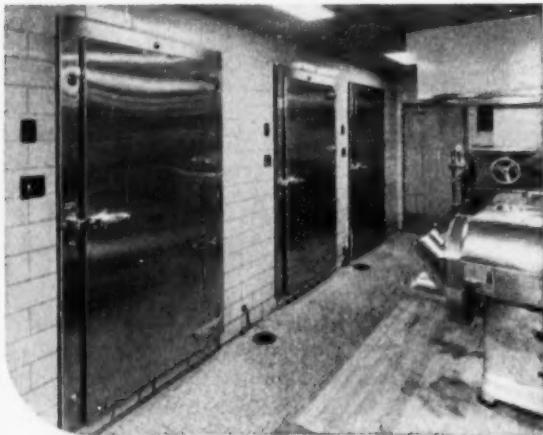
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and AIR CONDITIONING • JANUARY, 1953

# JAMISON Stainless Doors Selected For Store Setting Pattern For Future Building



Famous-Barr's new Southtown store in suburban St. Louis may prove to be a pattern for future store builders. Of an advanced design, the store contains every convenience for shoppers and employees, including a large dining deck, coffee shop, restaurant, employees cafeteria and a

kitchen, which is the last word in modern efficiency and sanitation. Jamison stainless steel clad cold storage doors in this kitchen combine "hospital spotlessness" with a maximum of cold-sealing efficiency. Jamison Cold Storage Door Company, Hagerstown, Md., U. S. A.



**EFFICIENT DOOR HARDWARE...** Adjustoflex Hinges combine spring tension regulation and automatic self-adjustment. Wedgetight Fastener and Adjustoflex Hinges assure tight seal of gasket against frame.



**DOORS OPEN EASILY...** The Wedgetight Fastener provides the utmost ease in opening door from either side. Tight door seal can be released with minimum effort.



*The Leader For Over 50 Years*

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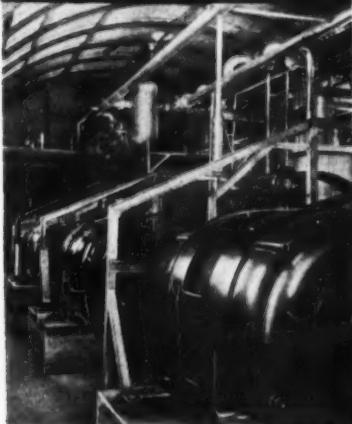
**JANUARY, 1953 • COMMERCIAL REFRIGERATION**

# Large or Small...

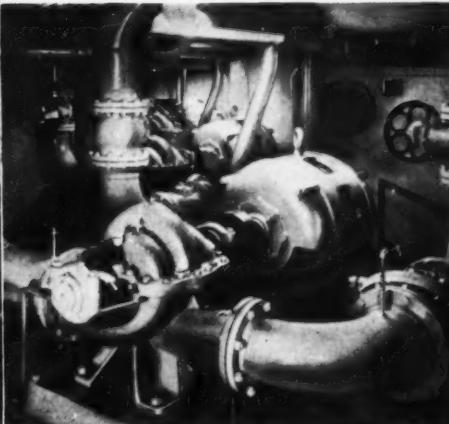
# Century

MOTORS

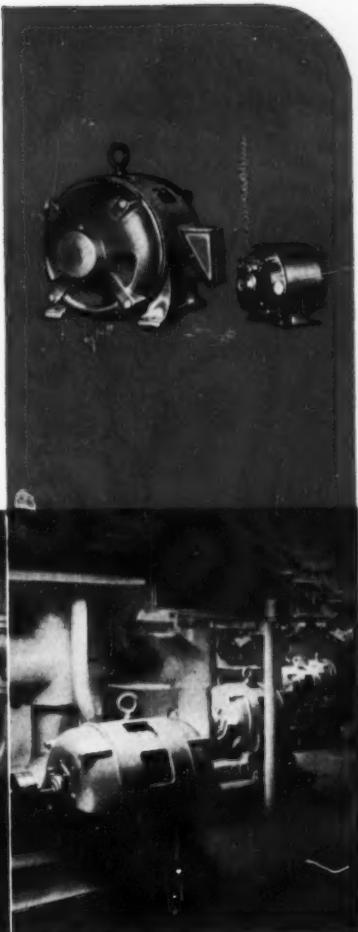
Are Designed to Provide  
All the Performance  
That Is Built Into the  
Machines They Drive



Century 125 H.P. motors driving ammonia compressors for ice for the Falcon Dam, which is under construction on the Rio Grande River.



Century 125 H.P. motors on circulating pumps for condensing units. They serve the refrigeration system of a large department store.



Century 125 H.P. motors on circulating pumps for chilled water. Used in the same department store.



Here are some typical examples of equipment powered by large Century motors, which were application engineered for TOP PERFORMANCE.

Matching the operating characteristics of your equipment is made easy through Century's wide line of single phase, polyphase and direct current motors to choose from. They are made in many types, ranging in size from 1/8 to 400 horsepower, with literally hundreds of specifications adaptable to specific applications.

Get Top Performance of your equipment through skillful motor application by specifying Century motors on the equipment you buy and for replacement.

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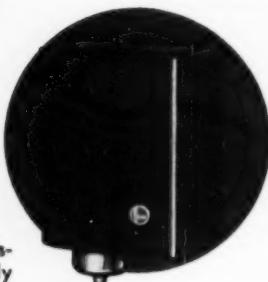
CENTURY ELECTRIC CO.  
1806 Pine St., St. Louis 3, Missouri  
Offices and Stock Points  
in Principal Cities

# STOP SERVICE CALL BACKS

on your refrigeration jobs!



Series 246 Water Valves are zoned to keep water out of sliding parts . . . are built in threaded and flanged styles for all refrigerants and in sizes from  $\frac{3}{8}$ " to  $2\frac{1}{2}$ ".

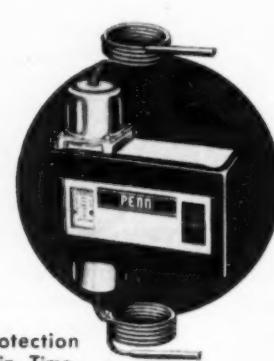


Penn Series 325 Time-Pressure Defroster automatically varies the defrost period to satisfy load conditions . . . eliminates seasonal adjustments . . . avoids unnecessary shut-down time.

*Be right the first time.* Use PENN controls for commercial refrigeration and air conditioning jobs. They'll protect your profits from dwindling away through costly service call backs!

As in most other products, there is also a big difference in automatic controls. And once you try PENN controls you'll learn that their performance *on the job* is the strongest recommendation for using PENN on every commercial refrigeration system.

In the complete PENN line, there is a type and model to fit your exact needs. A few types are illustrated here . . . there are many more. Take the first step in trying these better controls. Get your free copy of PENN's condensed catalog and price list. Ask your wholesaler or write **Penn Controls, Inc., Goshen, Indiana**. Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

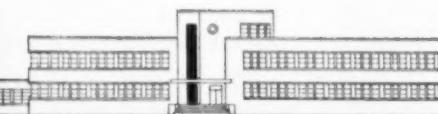


Series 275 Oil Protection Control with built-in Timer-Delay Switch for use on all pressure-lubricated refrigeration compressors.



Penn Series 270 temperature and pressure controls have direct reading calibrated scale which shows both cut-in and cut-out points.

# PENN



## AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

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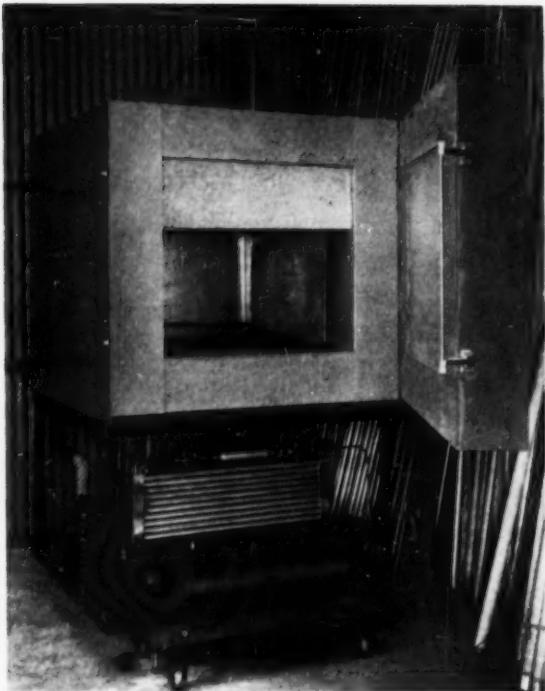
**SUMMER AIR CONDITIONING** fundamentals will figure importantly in the 1953 series of Indoor Comfort Conferences scheduled by the National Warm Air Heating and Air Conditioning Association for its members. One full session of the two-day conferences, scheduled for a score of cities throughout the country, will be devoted to summer cooling information and data. Both installations in new homes and the addition of summer cooling equipment in existing homes will be covered in the program. A special committee of the Association is preparing a design and installation manual, in cooperation with representatives of the Air Conditioning and Refrigerating Machinery Association and the National Association of Home Builders. You don't need a crystal ball to see that big things will be happening in the home air conditioning field in 1953.

**A REFRIGERATOR THAT SUPPLIES** ice cubes without ice trays is Servel's contribution to the household refrigerator field for 1953. The refrigerator stores the "Ice-Circles" (they are crescent shaped pieces, rather than cubes) in a basket convenient for use, and replaces them as they are used. The company says that you simply reach in the refrigerator and help yourself to cubes, one at a time or by the handful. As you take the cubes out, the automatic ice maker replaces them. Servel's engineers and designers have been working on this new device for several years, the company reports, and actual working models have been in operation in typical homes since 1949.

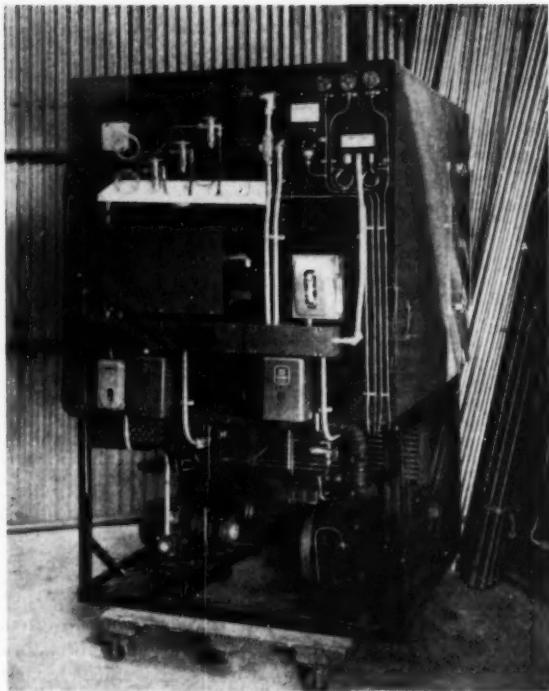
**REFRIGERATION EXTENDS THE LIFE** of tangerines in retail stores, according to the latest studies made by the U. S. Department of Agriculture. The tests show that the ordinary life of unrefrigerated tangerines in retail stores is about three days; but under refrigeration they will retain an attractive appearance and have good flavor for more than a week. Use of refrigeration (in walk-in coolers) for overnight storage helped greatly in keeping the unrefrigerated product, but best results were shown by the fruit that was refrigerated at all times, and kept moist by sprinkling several times daily. Refrigeration reduced decay, and wetting reduced drying of the skin. If you're interested in the details, write the USDA for Handling, Transportation and Storage Office Report No. 278. It's available from W. T. Penzer, Plant Industry Station, Beltsville, Md.

**A "SOLAR COMPENSATION" SYSTEM** will be used to control the air conditioning equipment of the new Statler Hotel in Los Angeles. The 30-story building is said to be the first of its size to utilize the new system whereby the room temperature is controlled by variations in the intensity of the sun's energy. Garvin Younkin, Pacific Coast manager for Minneapolis-Honeywell, which developed the system, said it is operated by means of eight electronic devices strategically located on the hotel's roof. Each of these electronic "shelters" is about eight by twelve by eighteen inches, and has an aluminum roof to reflect the sun. Inside walls are of a black pumice-like material to retain the heat. There is a room-angle glass to receive the sun's rays.

**FREEZERS ARE VALUABLE** for storing and preserving a variety of products around the home—but clothing isn't one of them. It seems that some home freezer owners store their clothes in their freezers to prevent moths, and some have the mistaken idea that freezing makes nylons last longer. Experts say that even if you don't object to storing clothes and food together it's likely to be poor economy to take up freezer space with clothes during the fruit and vegetable season when good buys in foods are possible. "Home frozen wardrobes", the experts say, simply aren't practical. As for freezing making nylon hose wear longer, manufacturers say this isn't so, either.



**STABILIZING METALS** for use in electronic equipment is the function of this specially designed cabinet which provides cooling down to -68 F and heating up to 185 F several times during a 16-hour period.



**SIMPLIFIED SERVICE** was made possible by mounting all gauges, expansion valves, controls, and electrical equipment on a special panel board attached to the back of the heavily insulated cabinet.

## Low-Temp Cabinet Stabilizes Metals for Electronics Firm

WHEN Hoffman Laboratories, Inc., a division of Hoffman Radio in Los Angeles, Calif., set up specifications and requested bids for a refrigerated cabinet to be used in stabilizing metals for use in sensitive electronic equipment, refrigeration engineers Jim Armstrong and Dan Driscoll of Independent Refrigeration Co. went to work.

Their efforts paid off well, for on the basis of the design they submitted the Independent organization was given the job of constructing this specialized piece of equipment.

The box had to have a net working area 30 inches wide, 42 inches long and 19 inches high. The cooling and

heating temperature range was from minus 68 F to plus 185 F in 30 minutes, and the reverse range must be accomplished in three hours. This cycle must be repeated several times in a 16-hour period.

As completed, the box is mounted over the mechanical refrigeration equipment at working height. The box is metal clad inside and out and insulated with 8 inches of fiber glass.

The system is equipped with two Frick 4-speed compressors. It is a two-stage compound system with liquid Freon-22 injection between stages. High-torque Fairbanks-Morse motors are used.

To accomplish the rapid rate of

pull down required, two expansion valves were used on the cooling coil. One of these is rated for the high temperature range and one rated for the low temperature range. The liquid Freon-22 to the cooling coil and plates is pre-cooled to approximately zero F by a double-tube heat exchanger tied into the high-stage compressor unit.

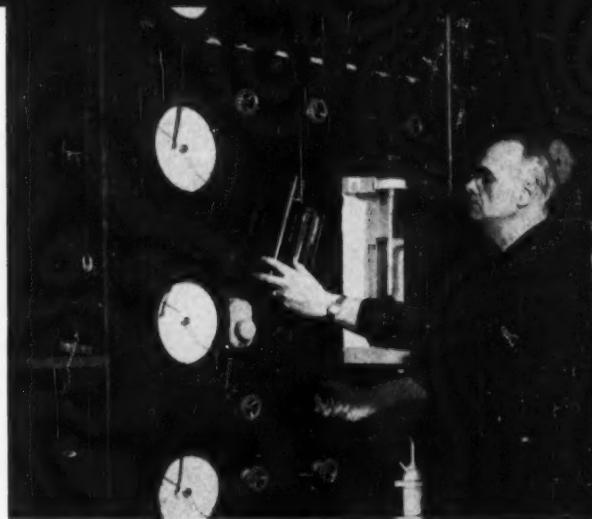
The low-stage compressor is equipped with a load limit switch to prevent overload of the compressor motor on start.

Mounted on two sides of the cabinet's interior, are Dole refrigeration plates. The forced air cooling coil

*Continued on page 86*



**YEAR-ROUND DEPENDABLE PERFORMANCE** calls for perfect lubrication. To assure it, Kelvinator has used Suniso since 1930. Here in this rough machining operation, oil grooves are being cut into Polarsphere pistons. Subsequent precision machining will be protected by Suniso.



**PURITY OF SUNISO IS SAFEGUARDED** from storage tank to charging board. This panel checks rate of flow, deaeration, particle contamination and pressures. Kelvinator buys the best oil, keeps it best.

## FAMOUS KELVINATOR POLARSHERE LIVES IN SUNISO FOR LONGER LIFE

The sealed-in-steel Polarsphere condensing unit made by Kelvinator to power its refrigeration equipment is as perfect as painstaking precision manufacture can make it. Every compressor piston, for example, is individually fitted to its cylinder, and clearance is held to a tolerance of one ten-thousandth of an inch.

To assure perfect lubrication for this precision mechanism, Kelvinator adopted "Job Proved" Suniso Oil in 1930 and has used it exclusively in factory charging ever since. Kelvinator's confidence in Suniso

is justified by the reputation for long life, economical operation, and trouble-free service which Polarsphere units enjoy. Kelvinator makes them efficient; Suniso keeps them efficient.

Kelvinator is but one of many leading refrigeration manufacturers who rely on Suniso Oils. Whether you make compressors, maintain them in a plant, or service them—you owe it to yourself to get complete information about the "Job Proved" superiorities of Suniso Refrigeration Oils. Just send the coupon below.



**A POLARSHERE IS CHARGED.** This board automatically measures the amount of Freon and Suniso, and prevents a unit from being charged if anything is wrong. It shuts off, for example, if the smallest amount of air has entered.

**TECHNICAL ASSISTANCE AVAILABLE.** Sun's engineers are at your service, without obligation, for consultation on lubrication matters. It may pay you to utilize their broad experience with all kinds of compressors and refrigerants.

**Department RI-1**

**SUN OIL COMPANY, Philadelphia 3, Pa.**

I would like to consult with a Sun representative;  
 please send the booklet "Suniso Refrigeration Oils."

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**SUNISO REFRIGERATION OILS**

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO & MONTREAL





EACH RIPENING ROOM in the Smilen Bros. produce warehouse at Brooklyn, N. Y., is refrigerated by a 5-hp compressor connected to a ceiling-mounted unit cooler equipped with a steam coil.

A New York contractor equips 22 separate rooms for . . .

## PROPER PRODUCE RIPENING

**T**WENTY-TWO rooms, each individually refrigerated for the maintenance of proper conditions for the ripening and storage of bananas and tomatoes, are constantly in operation in the Brooklyn, N. Y., plant of Smilen Bros., Inc. This impressive total helps make this one of the largest as well as one of the most modern produce storage plants in the country.

In putting the individual rooms under refrigeration, the company has taken into account the special conditions necessary for ripening and holding tomatoes and bananas.

Either mature green or ripe tomatoes should not be stored for any extended period at temperatures below 56 F. Whereas hard ripe tomatoes can be kept from a week to 10 days at 50 F, unripened tomatoes are kept best at 55 F. At this temperature they ripen very slowly but re-

main in good condition from two to six weeks.

For rapid ripening, 70 F is the optimum. In all cases the relative humidity of tomato storage or ripening rooms should be 85 to 90%.

The minimum temperature at which green bananas can safely be

held to retard ripening is 56 F. Below this, bananas suffer chilling, which prevents their ripening properly when later exposed to a suitable temperature, makes them more susceptible to bruising, and sometimes results in discolored spots on the skin.

For ripe bananas, the best holding temperature is about 56 F. At that temperature they generally keep satisfactorily for a week to 10 days.

In banana ripening rooms, uniform temperatures throughout the room are necessary for even ripening. Heating must provide sufficient capacity to warm up the fruit at a reasonably rapid rate when desired, and some method of humidifying (generally water mist nozzles) is essential.

Refrigeration must provide for removal of heat generated by the respiration of the fruit itself (.5 Btu per

*In last month's issue we published an article headed "Close Control Is the Important Thing" which described how a Cleveland, Ohio, contractor had devised an effective cooling and heating system for the ripening rooms of a wholesale firm. The article which appears on these pages tells how a New York contractor went about handling the same problem.*

—The Editors

hour per pound of bananas), and must have a capacity sufficient to handle rapid reduction of room temperature once the fruit begins ripening, as well as removal of heat inflow through room walls during hot weather.

In each room, a cooling unit having sufficient capacity for the peak demand is required. For a properly insulated room holding one carload of bananas, approximately 3 tons of refrigeration are necessary. However, in providing for over-all refrigeration of a plant, allowance is usually made for the fact that not all the ripening rooms require full refrigeration simultaneously.

#### Humidity Kept High

At the Smilen Bros. plant, bananas are unloaded from trucks directly into the ripening rooms and the individual bunches hung on hooks. The room is first heated to initial ripening temperature (70 F for three to four day ripening, 58 F for 10 day ripening). Humidity is kept at 95% with water mist sprays until the fruit begins turning yellow, then held at 85 to 90%.

During the ripening period the temperature is reduced as the fruit colors, the temperature being held at 56 F on the last day.

After ripening, the fruit is packed, kept overnight in a holding room at 56 F and distributed the next day to the company's 48 retail stores in metropolitan New York.

#### Individual Control Provided

Of the 22 rooms placed under refrigeration, 10 serve for banana ripening, 10 for tomato ripening, and one each for holding. The ripening rooms measure approximately 17 x 24 x 11 feet, the holding rooms 24 x 37 x 11 feet. Each banana ripening room can hold a carload and a half of bananas (400 bunches, approximately 32,000 lbs.) or its equivalent.

To cope with the problem of separately controlling conditions, Ideal Refrigeration Co. of New York, contractor for the job, equipped the rooms individually.

Each ripening room has a separate 5-hp compressor connected to a ceiling-mounted Bush unit cooler with a steam coil mounted on the



IN ALL BUILDINGS in which cement block construction is used, a Florida firm has found a ready and growing market for ...

## Pre-Cast Concrete Frames For Room Air Conditioners

PRE-CAST concrete frames for window-type air conditioners are the latest development of Livesay Window Co., Miami, Fla. For years a leader in the field of pre-cast frames for windows, this company now is adapting this same treatment to the installation of room air conditioners.

The pre-cast frame greatly facilitates the installation of a window-type air conditioner in any new cement block construction. Installed at the time the building is being erected, just as are pre-cast window frames, the air conditioner frame eliminates the need for sacrificing any window space for the installation of these units.

Many new cement block buildings are being erected in this area with the pre-cast air conditioner frames located at strategic positions throughout. Even when the builder does not desire to install air conditioning immediately, installation of these frames can prove advantageous, for they can simply be plastered over until such time as the installation of air conditioning units may be desired.

It is then an easy matter to cut through the plaster and have the frame all ready for use. This is a considerable advantage over the old method of having to cut through a block wall, or using the less expensive alternative of installing the unit in a window.

Most buildings using this type of construction are equipped with steel window frames, and installation of an air conditioner means that the window must be permanently closed and a new one installed if the air conditioner ever is removed.

Livesay is building these pre-cast frames to meet specifications of six major manufacturers of room air conditioners. The company also is producing a special frame which can be altered to fit any brand of air conditioner.

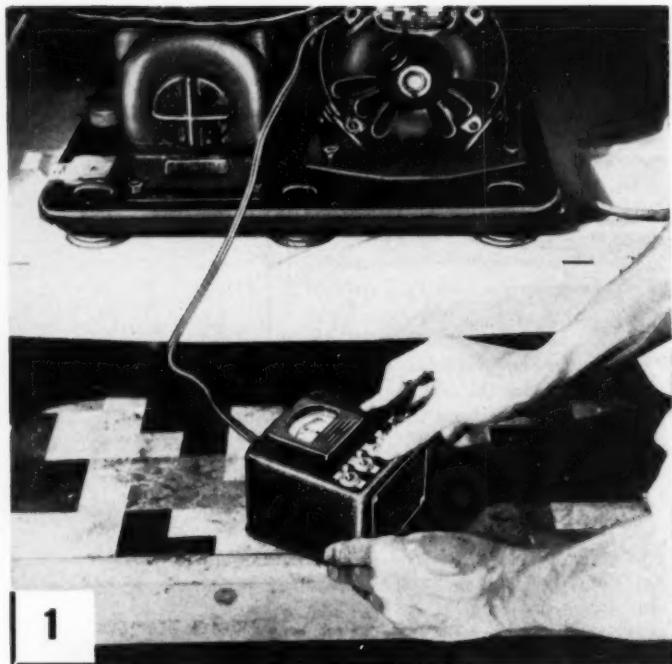
These frames sell for about \$7 and it is believed that all of this cost can be offset by savings in cement blocks replaced and lowered labor costs for installation.

Many air conditioning dealers in the Miami area, it is reported,

**Motor conked out?  
Get the system back  
in operation quickly  
with this two-point  
service procedure:**

**1 DETERMINE  
capacitance value**

**2 INSTALL  
emergency capacitor**



## Proper Use of Capacitors

by **Charles Golenpaul**  
*Aerovox Corp.*

**S**PEED is of extreme importance in the servicing of refrigeration equipment, for in many cases prolonged disruptions of refrigeration facilities will result in extensive damage to the products or processes involved.

Modern maintenance procedures for motor capacitors have gone a long way toward eliminating many of the problems and delays caused by some out-dated and time-consuming service practices.

When a motor capacitor has conked out—and all of them do wear out in time and are subject to replacement in due course—it is imperative that the original capacitance value be matched, for it is evident that the capacitance used for any motor is chosen to give the maximum starting torque.

This value is determined by the

motor manufacturer. In the field, when the replacement of the capacitor is necessary, the replacement unit should have the same capacitance value as the original value. There is no such thing as a cure-all in motor capacitor replacements.

How is the serviceman to know the capacitance value of that discarded capacitor? Well, if he's real lucky, he can get it by identifying the discarded capacitor—by its label, if any. Or, he may garner this information from the motor nameplate, if any; by the type or model number of the refrigerator itself, if identifiable; or by the service data issued by the equipment manufacturer, if available.

Then, too, leading capacitor manufacturers publish timely listings of both exact-duplicate and universal motor capacitors, giving voltage ratings, capacitance values, and dimensions. From time to time there have been tabulations of all types of stand-

ard capacitor-start motors, with their capacitor equipment, so that the serviceman could work right from the motor identification.

There are, however many instances where no such identification is possible, and where capacitor make, type, number, and characteristics are simply unknown. What does the serviceman do then? Well, with the use of a capacitor selector there is a next and logical step.

The capacitor selector is intended for just that kind of situation. Consisting of a voltmeter to indicate safe operating conditions, together with a bank of capacitor sections that are cut into circuit by labelled toggle switches, the capacitor selector is clipped to the motor in place of the defunct capacitor.

The various toggle switches are then flipped, starting with the 65 mfd. switch first. Note that each successive toggle switch throws in 17.5 mfd. more, for a wide range of



## Speeds Restoration of Service

capacitance values. The volt meter is watched to see that the voltage reading does not exceed the safe 138 volts.

When adequate starting torque is obtained in less than three seconds, the required capacitance value is totalled from the "on" switches. And so the serviceman now knows the ideal capacitance value to use with that particular motor.

Having determined the correct capacitance, the serviceman now must get the replacement capacitor to operate the motor. That's easier said than done. The supply house may be some distance away, involving a considerable loss of time. The owner of the refrigeration equipment may be growing more impatient by the moment. What to do?

That's the time to use an emergency capacitor. This is a handy capacitor with a number of sections which make it possible to obtain the required capacitance value for any given motor.

This is done by plugging the respective colored leads of the sections into the grouping connector. With the proper capacitance value now made up, the rubber-sleeved connectors are clipped to the motor in place of the discarded capacitor. The motor immediately starts up and the perishable food is safeguarded.

Of course the emergency capacitor could be left permanently installed, but since it costs considerably more than a regular capacitor, it should be replaced at the first opportunity. Therefore, at the serviceman's convenience, he picks up or has delivered the correct replacement unit.

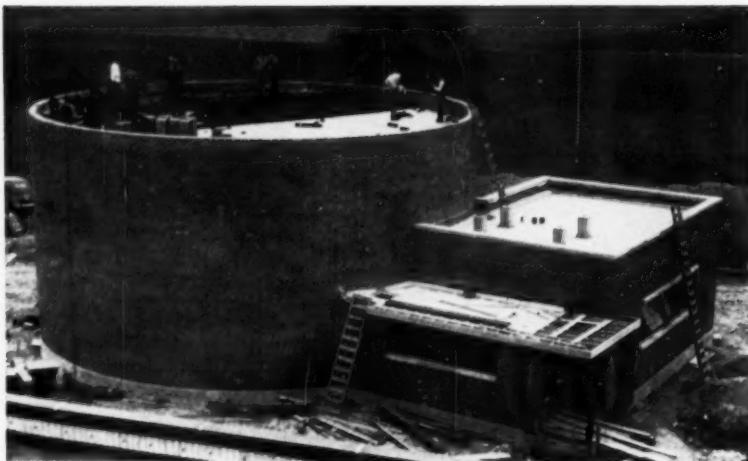
Such a unit can be of either the exact-duplicate or the universal type. The difference between the two is that in some installations only the exact-duplicate type can be fitted in place, due to housing and other design considerations. Otherwise the universal type, meeting the required electrical values, can be installed,

even if it means a bit of improvisation such as taping in place or wrapping the unit with cardboard to fit snugly in the casing.

As the name implies, universal replacements take care of a wide range of capacitor needs, so that a minimum inventory or stock takes care of a maximum number of requirements. With the exact-duplicate types, on the other hand, the fussier replacements are taken care of "just like new," even though it necessarily larger inventory on hand.

Certain mechanical considerations often enter into capacitor replacements. For this reason some lines are designed with a system of interchangeable pieces, called motor capacitor hardware, providing top and bottom caps, mounting brackets and complete covers for the capacitors. Wiring is simplified in some replacement types by having screw terminals in place of soldering lugs.

*Continued on page 67*



**CIRCULAR ROOF** of this insulation research laboratory was covered with cork-board applied by different methods.

**LABORATORY** foundation shows some of the 520 thermocouples installed in the building to check insulation effectiveness.



This new research laboratory, designed to duplicate any low temperature operating conditions, hopes to provide . . .

## Answers to Insulation Problems

ANY unanswered product questions or untried application methods on low-temperature insulation are due to get a good going over in the modern laboratory facilities of the Research and Development Center erected by Armstrong Cork Co. A separate building has been designed and constructed for use in a continuing search for better insulation techniques.

For the first time in the industry these facilities, equipped with a wide

range of temperature and humidity controls, make it possible to actually duplicate any set of low temperature operating conditions.

This goes one step beyond the limitations of most test chambers in service today. Normally, test rooms are designed to operate under controlled inner temperatures only.

Because these new facilities are designed primarily to test materials and the way they are used in standard cold storage construction such

as in cream hardening rooms, both inner and outer temperatures must be rigidly controlled. In addition, these facilities make it possible to greatly accelerate surrounding conditions and thereby offer a short cut to years of actual usage.

The new facilities were designed for flexibility of operation. For example, the unusual wall heights of 24 feet on the circular chamber exceed those generally found in actual practice. Yet, the circular con-

struction of the room would permit increases in wall heights up to about 40 feet without additional internal supports. The brick curtain wall would just be extended up to the new wall heights.

The circular design of the test room was used to overcome one of the foremost needs of most laboratories—lack of space. The circular design permits a maximum amount of floor area in relation to wall area.

This is important because scale replicas of various types of insulated construction will be built within the dual temperature test room. These structures may measure 20 feet in

length and width with ceiling heights up to 24 feet. The circular design insures observation and working area around the scale replicas in addition to providing adequate space for free circulation of air.

### 500 Thermocouples Used

To insure accuracy on test projects, an elaborate system of recording devices has been literally built into the room. From the adjoining machine room, over 500 thermocouples are strung out to various points in the test room. About 30,000 feet of thermocouple wires

lead from locations in the building to a huge control board in the machine room.

Elaborate instrumentation permits up to 160 readings to be made at one time at various points in the room. In this manner, the temperature pattern of the entire construction, both inner and outer rooms, can be studied at first hand.

The circular building is designed to control accurately temperatures from zero to 160 F. Inside the shell, temperatures can be varied from -100 to 200 F. Humidity can be accurately controlled over a dew point range of 35 to 140 F.

## Air Conditioning Is Key to Mass-Produced Homes

WITH the opening of "pilot" homes in New Orleans and Kansas City, Carrier Corp. has launched its participation in a revolutionary new building program. In each city, local architects and contractors have opened to the public a home designed and built around Carrier's Weathermaker air conditioning units.

These homes are the forerunners of a projected 500 houses in each location which are to be built on a mass production basis. The combined savings gained through air conditioned design features and mass production methods used in the construction will enable contractors to sell these homes for about the same price as a conventional home of the same size and without air conditioning. The houses in New Orleans will sell for \$18,250 to \$19,300 exclusive of the cost of the lot. The Kansas City homes will sell for \$16,300 or more, also exclusive of the lot.

These three bedroom homes are designed with five different exteriors and as many interior arrangements made

possible by the many construction advantages offered with the installation of the air conditioning units. Needless and costly building requirements are eliminated and design for better living areas is made possible.

Heart of the home is the air conditioning unit, a compact 43 by 52-inch machine which cools the home and removes excess humidity in the summer, heats it in the winter and provides year-round circulation of fresh, clean filtered air. Both heating and cooling are controlled simply by the flick of a switch.

William A. Lake, Carrier's home air conditioning manager, states that these air conditioned houses offer the builder a new way of selling homes in quantity. He also points out that the buyer is presented with a new standard of comfort and convenience besides making a wiser investment. According to Lake, these homes with complete air conditioning will still be "modern" long after conventional homes of the same period are obsolete.



ON A SLAB in New Orleans, the air conditioning dealer establishes the exact spot for the location of the year-around unit which will form the "heart" of this modern new home. The slot in the concrete where the air will go into the unit is a time, money, and space-saving feature of this design.



IN A BASEMENT in Kansas City, this packaged year-around conditioner has become the focal point around which the home is being constructed. Less than an hour after the unit was slid into place, half of the floor joists already are in place above it. The pre-cut wall section will go up just as rapidly.

# THE HEATING SIDE OF AIR CONDITIONING

BY Wm. Henry Knowlton

## Design of a Floor Panel Radiant Heating System

AS the design of a floor panel radiant heating system is a broad and complex subject, air conditioning contractors who desire to specialize in this field should obtain a copy of the "Heating and Ventilating Air Conditioning Guide" and make a thorough study of the subject. It would also be advisable to obtain the data published by various manufacturers of wrought iron pipe and copper tubing who, of course, emphasize the merits of the materials they manufacture.

Generally speaking, manufacturers of wrought iron pipe recommend floor panel systems, and manufacturers of copper tubing recommend ceiling panel systems. Each has its advantages under certain situations, but in this instance we are not interested in joining the "battle of the metals", but desire to advance a few suggestions which may be valuable in guiding the design of a floor panel system.

For this type of system the heat loss should be calculated exactly as for any other, in accordance with the tables published by the National Warm Air Heating and Air Conditioning Association, or the method presented in the ASHVE Guide.

### Heat Loss Calculations

The additional quantity of heat loss into the ground may be calculated by the use of the "Floor Loss Factor" described in the Warm Air Association Manual on "Perimeter Heating". Instead of doing this, however, most air conditioning contractors will simply add 25 to 30% of the total heat loss, which has been found to be accurate enough for practical work.

Once we have determined the total heat loss on the building, whether it is a factory, church, garage or residence, we need to find the Btu per hour per square foot of panel sur-

face that will be required to heat the structure. We must also work out pipe size, approximate spacing, and mean operating temperature.

The mean operating (water) temperature is usually held between 120 and 140 F, with most designs coming as close to 140 as possible to reduce installation costs.

Obviously, the use of a higher water temperature permits the use of smaller pipe, which reduces first cost. While 1-in. pipe is generally used, if the Btu output required per sq. ft. of panel is high (approximately 85 Btu per sq. ft.) it may be necessary to use 1 1/4-in. pipe, and if it is low (30 Btu per sq. ft.) a 3/4-in. pipe may be used.

Research done by Dr. F.E. Giesecke indicates that under usual conditions panel heating design should be based upon the transfer of 3.5 Btu per sq. ft. of external pipe surface, per degree temperature difference between water



Fig. 2  
Continuous Coil

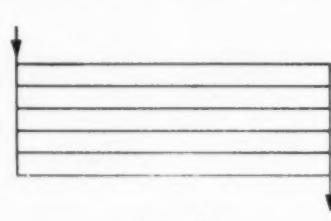


Fig. 3  
Grid

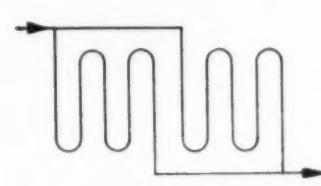


Fig. 4  
Combination Grid and Coil

## Fig. 1 — RADIANT HEATING CONVERSION CHART

For converting Btuh into feet of genuine wrought iron pipe  
based on 70 F room air

Btuh	Feet of Genuine Wrought Iron Pipe												120° F Water					
	150° F Water				140° F Water				130° F Water				120° F Water			120° F Water		
	3/4"	1"	1 1/4"	1 1/2"	1"	1 1/4"	1 1/2"	2"	3/4"	1"	1 1/4"	1 1/2"	2"	3/4"	1"	1 1/4"	1 1/2"	2"
100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
200	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
300	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
400	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
500	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
600	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
700	9	7	6	5	4	3	2	1	0	8	7	6	5	4	3	2	1	0
800	10	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	0
900	12	9	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1	0
1000	13	10	8	7	6	5	4	3	2	9	8	7	6	5	4	3	2	1
2000	26	24	16	14	12	10	8	6	4	19	16	13	10	8	6	4	3	2
3000	39	31	26	21	17	14	12	10	8	36	28	25	20	16	12	9	6	4
4000	52	42	33	29	23	19	15	12	10	59	48	38	33	26	19	13	9	6
5000	65	52	41	36	29	23	19	15	12	59	47	41	33	26	19	13	9	6
6000	78	62	49	35	30	24	19	15	12	56	49	39	33	26	19	13	9	6
7000	91	73	58	50	40	33	24	19	15	56	57	46	36	26	19	13	9	6
8000	104	83	66	58	46	33	24	19	15	75	66	53	41	33	24	19	13	9
9000	117	93	74	64	52	34	23	17	12	85	74	59	44	38	28	19	13	9
10000	130	104	82	72	58	48	36	24	17	94	82	66	48	38	28	19	13	9
15000	195	155	123	107	86	222	178	141	123	99	260	208	164	143	115	91	69	56
20000	260	208	166	144	116	296	238	188	164	132	346	277	220	192	163	145	116	91
25000	325	260	206	180	144	370	297	235	205	164	433	346	274	240	192	159	145	116
50000	649	519	411	359	288	741	594	470	410	328	865	692	548	479	385	1038	850	657
100,000	1298	1039	823	719	575	1482	1188	940	821	657	1750	1385	1097	958	766	2075	1660	1315

1. Normal design temperatures are in the 130-140 F range. For unusually low heating loads 120 F water may be used, or with unusually high requirements 150 F water may be used.

2. 1 1/2" & 2" pipe sizes are generally used only for mains. 1" & 1 1/4" pipe are sizes most often stipulated for coils or grids: 3/4" pipe is frequently used with extremely low heating loads — 30 Btuh/sq. ft. or less.

3. All pipe length figures are to the nearest complete foot and are based on the following formula:

$$P = \frac{HL}{3.5 \times A \times dT}$$

Where: P = linear feet of pipe; HL = total heating load, Btuh (in all directions from panel); A = external pipe surface area per linear foot; dT = temperature difference, water to room air

Values for "A" for Byers genuine wrought iron pipe  
1/4" = 0.275; 1" = 0.344; 1 1/4" = 0.435; 1 1/2" = 0.498; 2" = 0.622

and room air. Translated into lineal equivalent this is roughly:

1.2 Btu per lineal foot 1-in. pipe.  
1 Btu per lineal foot  $\frac{3}{4}$ -in. pipe.  
0.80 Btu per lineal foot  $\frac{1}{2}$ -in. pipe.  
Based on the average unit rate of  
3.5 Btu suggested above, pipe coil spacing is usually as follows:

1 $\frac{1}{2}$ -in. pipe	18 to 24 inches on centers.
1-in. pipe	12 to 16 inches on centers.
$\frac{3}{4}$ -in. pipe	9 to 12 inches on centers.
$\frac{1}{2}$ -in. pipe	6 to 8 inches on centers.

### Determining Lineal Feet of Pipe

To determine the lineal feet of pipe required, we first make a tentative selection of pipe size to be used, and mean operating water temperature. When this is done, the following formula may be applied:

HL

$$P = \frac{HL}{3.5 \times A \times dT}$$

Where:

P = linear feet of pipe

HL = total heating load

A = external pipe surface area  
per lineal foot

dT = temperature difference,  
water to room air.

To test the application of this formula let us take the same example used in our last article on "Design of Perimeter Heating". This was a two-bay gasoline station measuring 24 x 48 ft. and having a total heat loss of 90,000 Btuh.

### The Formula Applied

Tentatively let us select a water temperature of 140 F, and assume that we will use 1-in. wrought iron pipe on 1-ft centers. This means we will have 24 lengths of pipe approximately 22 feet long, or a total of 1056 lineal feet of pipe, in our continuous loop or grid. Now let's apply the formula to see how much pipe we actually need.

In this case HL or "heat loss" is established as 90,000 Btu. Using the manufacturer's table we find that 1 foot of wrought iron pipe has a radiating surface of 0.344 sq. ft. per foot. Our dT or temperature difference is 140 F water minus 70 F room temperature or 70 F. Our formula now looks like this:

$$\frac{90,000}{3.5 \times 0.344 \times 70} = 1071 \text{ feet of pipe}$$

As this is slightly more than the 1056 feet of pipe we have in our tentative layout, all we have to do is to increase the coil or grid size slightly to arrive at the correct quantity of pipe for the job.

The above example has been presented to show the theory on which radiant heating systems are calculated, as knowing this formula will enable any air conditioning contractor to meet unusual situations. However, various manufacturers publish "Radiant Heating Conversion Charts" like that shown in Figure 1.

Checking our results against this chart we find that, with 140 F water temperature, for every 10,000 Btu produced we need 119 feet of 1-in.

glass area, such as a display window. Proper sizes for mains may be quickly determined from the tables given in Chapter 16, 22nd Edition, of the ASHVE Guide.

### Factors In Coil Design

Coil design is governed by two important factors—cost of fabrication and frictional resistance to flow of water. While the continuous coil (Figure 2) may be less costly to fabricate, due to the fact that short lengths of pipe may be welded together to eliminate waste, the Grid (Figure 3) will serve even large areas with relatively low frictional resistance.

Thus our layout is balanced between the cost of fabricating pipe and the cost of the pump required and the power to operate it. This balancing of economic factors accounts for the popularity of the combination grid and continuous coil system shown in Figure 4. In this type of system, fabricating costs may be held to a minimum while good hydraulic characteristics are maintained.

Without getting involved in "the battle of the metals", there are certain definite advantages in each type of radiant heating system.

### Location of Coils

As advocates of both floor and ceiling panel heating claim to have the economic advantage in the matter of first cost, it is up to the air conditioning contractor to determine which type of installation is most economical for a particular job.

Both systems claim greater efficiency, no drafts, and even room temperatures—all real advantages of radiant heating.

Advocates of floor heating claim that because the heat source is closer to the occupant, greater comfort is produced due to the sensitivity of the feet and legs to heat and cold. Opponents claim the feet may become too warm.

Advocates of ceiling panels state that this is the truest type of radiant heating, due to the fact it produces less convected heat. Other advantages claimed are quicker response (because plaster is lighter than concrete) and greater efficiency (because the panel is not covered).

Our position here is that both types of radiant heating—floor and ceiling—are excellent, and each has

*Continued on page 71*

### BOOK REVIEWS

**Title:** Thermodynamics

**Publisher:** Lefax, Philadelphia, Pa.

**Price:** \$1.00

A pocket-size booklet of data sheets presenting a handy compilation of information on all phases of thermodynamics. Prepared in loose-leaf form to put "facts at your fingertips", this publication is specifically designed to save you time by making possible ready reference to the condensed factual information it contains.

Typical of the material covered by these data sheets is the thermodynamic properties of various refrigerants, a detailed discussion of the isothermal compression of air, combustion heats of various fuels, average and minimum temperatures in various cities, specific heat of elements, symbols for heat and thermodynamics, and a psychrometric chart.

pipe. This figure multiplied by 9 (to obtain 90,000 Btuh) equals 1071 feet of pipe, or the exact result we have arrived at above. Charts of this kind provide a quick and easy method for determining the number of feet of pipe required for a specific installation.

Normally, with a multi-room structure, it is advisable to lay out mains before designing piping systems for the individual rooms. There are two reasons for this practice. First, because the total capacity of the mains should be subtracted from the piping required for each room; and secondly, because mains can often be run along the periphery of the building to compensate for large glass areas.

As the mains are larger than the other pipes, they may make it possible to eliminate the need for additional piping directly under a large

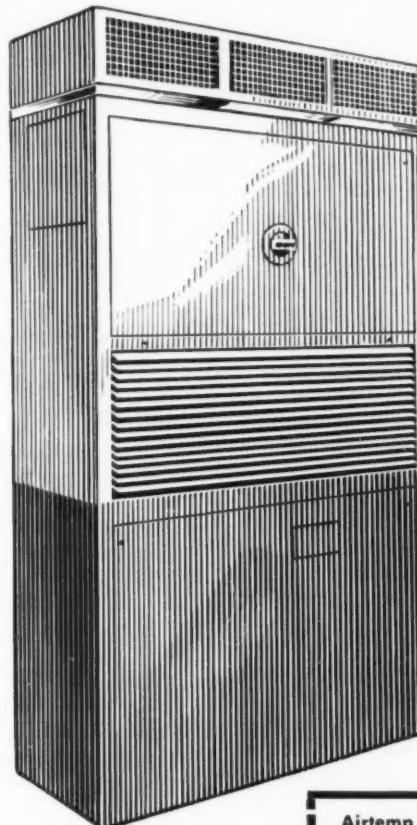


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and AIR CONDITIONING • JANUARY, 1953

# Absolute Temperature Control Makes American Yogurt 'Tops'

**R**EFRIGERATION and air conditioning are among the most important factors in the process of making yogurt at Dannon Milk Products, Inc. In fact, this firm's new \$750,000 building in Long Island City, N. Y., is air conditioned throughout.

Although yogurt (a cultured milk-food of custard-like consistency) originated in Europe, experts now say that the American product is superior in quality because of the closely controlled conditions of time and temperature under which it is produced.

Being able to maintain absolute control over these factors through the application of modern refrigeration and air conditioning techniques has resulted in the higher quality in consistency and taste for American-made yogurt, according to Joe Metzger Sr., executive vice president of Dannon plants in France and Spain.

## Tradition Plus Technology

He points out that European tradition and American technology are combined in two of the principal phases of yogurt production; bacteriological know-how in maintaining the proper composition of the beneficial bacteria used in the yogurt culture, and proper temperature controls during the fermentation process.

Air purification is also an essential element in Dannon's yogurt production, and the main processing room actually is a pressurized chamber in which air is maintained at a higher pressure than outside.

To appreciate the problem which Dannon research was called upon to solve, it is necessary to see how yogurt is produced according to Dannon methods.

Each day about 2,000 gallons of milk are delivered to the plant. The milk is taken from milk trucks by suction and sent to one of the plant's two refrigerated storage tanks, each having a capacity of 4,000 gallons. The tanks made by Pfaudler, have Freon circulating in their cooling jackets.

After cleaning, homogenization and pasteurization, Dannon yogurt cultures are added to the milk while it is still warm. These cultures, consisting of three types of beneficial bacteria, are prepared daily in the plant laboratory. Once cultured, the milk goes to filling machines where containers are automatically filled and capped under vacuum.

Filled and capped containers are placed in aluminum incubation chambers where cultures develop under controlled conditions of moisture and temperature. Containers of the liquid cultured milk remain in the incubators for several days while fermentation takes place and the custard-like yogurt develops.

When it reaches the right degree of fermentation, the finished yogurt is transferred to large refrigeration chambers for storage. These chambers open directly onto the loading platforms where trays of containers are loaded directly onto insulated trucks for distribution.

While temperature in the incuba-

tion chambers is kept uniform so that it is the same in any strata of the columns of trays, it varies in accordance with the composition of the yogurt culture.

In the refrigeration chambers, on the other hand, the temperature is kept at between 36 and 44 F. The three refrigeration chambers cover an area 30 by 50 feet and are lined with cement and cork. The plant is equipped with four 15-ton compressors.

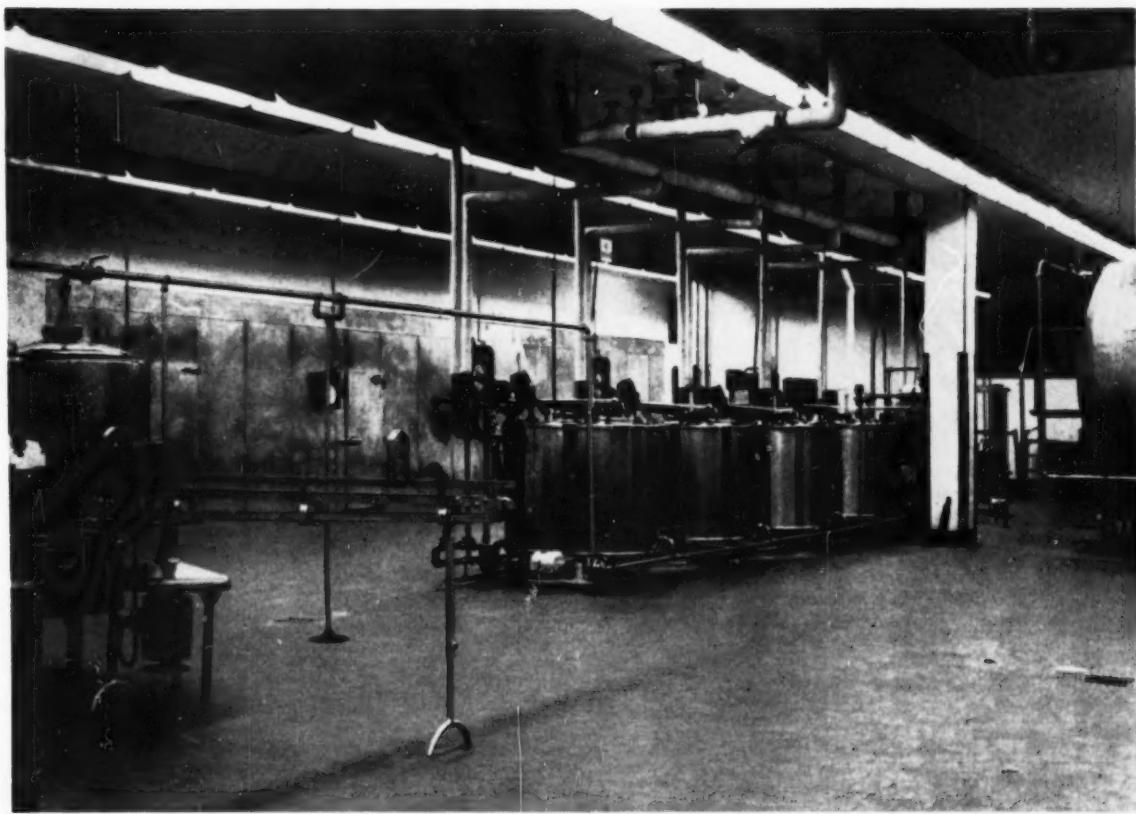
## Pressurized Processing

An outstanding feature of the Dannon production operation is the pressurized processing chamber which occupies 6,000 square feet of the new plant. This feature is part of the procedure adopted in an effort to maintain the chamber as bacteriologically clean as possible.

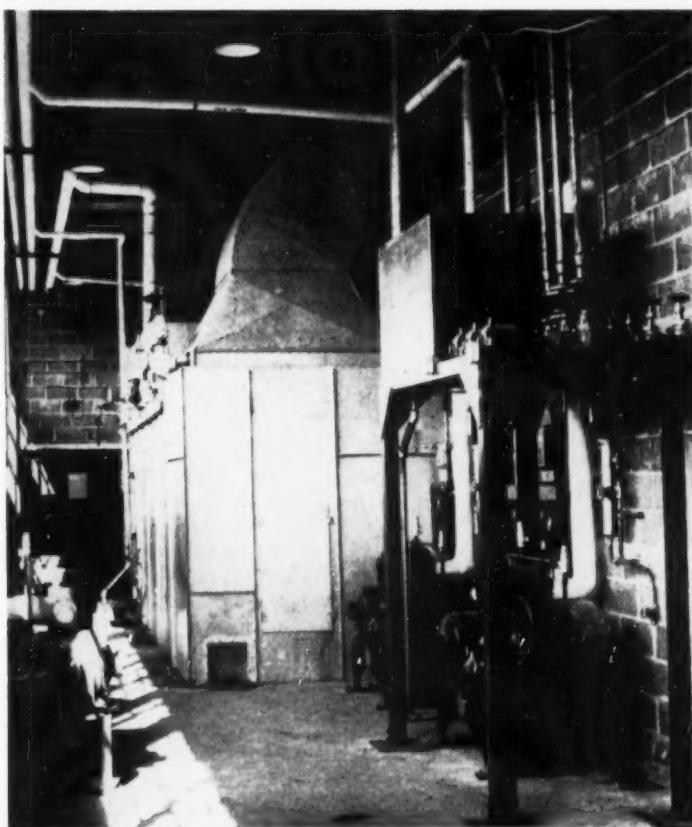
Air injected into the processing chamber is filtered through glass wool, washed and filtered again. Pressure of the air within the chamber is maintained at one-tenth of a pound above the outside atmosphere so that when any doors are opened the air pushes out from the chamber, thus preventing the influx of any unfiltered air.

This constant concern with sanitary standards on a bacteriological level is paramount in the Dannon operation since the principal element in the production process is the bacteriological culture. Tests are continuously conducted on atmosphere in the proc-

*Continued on page 71*

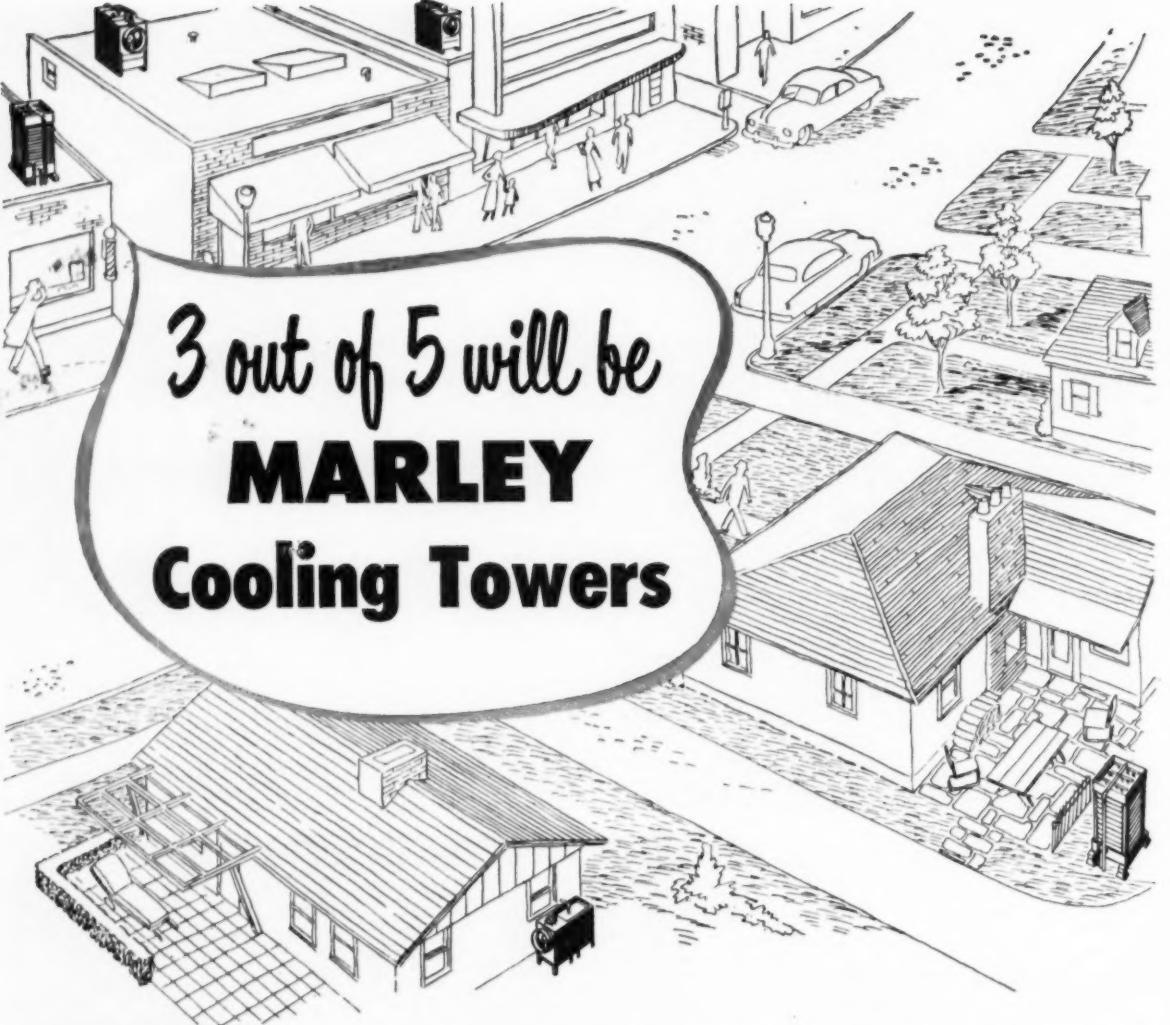


**FULLY AIR CONDITIONED** and pressurized is the processing chamber of Dannon Milk Products, Inc., which operates the world's largest and most modern plant devoted exclusively to the production of yogurt.



**HERE IS THE EQUIPMENT** which does the job. Four 15-ton compressors provide the necessary refrigeration to hold temperatures in the processing room between 36 and 44 F. Storage tanks are cooled by circulating Freon.





# 3 out of 5 will be **MARLEY** Cooling Towers

Every reliable estimate points to an unprecedented market in 1953 for air conditioning — and a corresponding demand for cooling towers. Past experience, combined with current Marley production to meet this demand, indicates that in many cities, 3 out of every 5 towers sold will be Marley cooling towers.

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Even now, Marley is producing thousands of Aquatowers and natural draft towers to build up stocks in 30 cities. In making plans to capture your share of the market this year, you can count on an adequate supply and "over-the-counter" delivery of Marley towers, the cooling towers with built-in acceptance.

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JANUARY, 1953 • COMMERCIAL REFRIGERATION

# NEWS OF THE INDUSTRY

## 400 EXHIBITORS IN ASHVE JAN. SHOW

Close to 400 manufacturers of air conditioning, heating and ventilating equipment will display their newest products for these fields at the 11th International Heating and Ventilating Exposition, to be held in the International Amphitheater, Chicago, January 26-30.

The exposition, sponsored by American Society of Heating & Ventilating Engineers, will open at 2 p.m. January 26. The show will be open from 2 to 10 p.m. daily, except for Friday, January 30, when it closes at 6.

This year's show will be the largest in history, the management says, with additional display space having been made available recently in the Amphitheater's south wing. Several manufacturers who have not been represented in previous expositions will display.

Scope of the exposition is all-inclusive. Complete air conditioning, heating and ventilating systems will be shown, as well as equipment units suitable for use in air conditioning designs of all classes. Range of applications is from low cost dwellings through the entire residential field, to business institutions and industrial classifications. The latter are numerous and highly important.

Besides complete systems, much auxiliary equipment will be on display. This includes such products as filters, electronic precipitators, humidifiers, fans, blowers, diffusers, dampers, variable speed drives, motors, temperature and pressure recorders, etc.

Display of individual room air conditioners and other packaged type cooling equip-

## ALL-INDUSTRY SHOW PLANS START



**ADVANCE PLANNING** for the 8th All-Industry Refrigeration and Air Conditioning Exposition in Cleveland next November already occupies the Exposition Committee of REMA, shown at work during a recent meeting in Cleveland. Left to right are: H. F. Spoerler, Sporian Valve Co.; F. G. Coggan, Detroit Controls Corp.; Lud Emde, Temprite Products Corp.; Robert Cassatt (standing), Fedders-Quigan Corp.; W. A. Siegfried, Superior Valve Co., chairman; and George E. Mills, Show director and Rema public relations chief.

ment for commercial usage will be an important part of the exposition. Complete equipment for central-plant type jobs also will be shown.

## FRIGIDAIRE PLANS "ALL-YEAR" UNITS

W. F. Switzer, manager of commercial and air conditioning sales for Frigidaire, reports that the company is preparing to enter the residential air conditioning market in 1953 with units designed for new or existing homes.

The company now has 3, 5, and 7½-ton capacity units for residential cooling, and next year will also have year around combination heating and cooling units, Switzer said. Two new window-type room conditioners were recently introduced to broaden the line.

Frigidaire engineers be-

gan experiments with residential air conditioning units over 10 years ago, Switzer said, and test models were installed in about 100 homes in different sections of the country this past summer.

## BALTIMORE DEALER IN NEW LOCATION

Oreole Refrigeration Co., distributors of commercial refrigeration and air conditioning equipment, have opened newly enlarged showrooms at 2308-10 Frederick Ave., Baltimore. The new facilities more than double the previous display facilities of custom and stock units. Elbert R. Ottenheimer, son of Reuben E. Ottenheimer, president, is in charge of the commercial refrigeration department. The air conditioning and designing section is handled by Louis M. Kann.

## REMA OPENS SHOW SPACE TO MEMBERS

Exhibit space in the 8th All-Industry Refrigeration and Air Conditioning Exposition has been offered to members of the Refrigeration Equipment Manufacturers Association, it has been announced by W. A. Siegfried, general chairman of the exposition committee.

The Exposition will be held in Cleveland, on Nov. 9-12, 1953. Nearly 60,000 square feet of actual exhibit space, exclusive of aisles, will be offered to members of the refrigeration and air conditioning industry for the display of their products in the Exhibit Hall, North Exhibit Hall, Arcade and Upper Lakeside Hall of the Cleveland Public Auditorium.

Space will be made available to previous exhibitors shortly after Jan. 1 and to the industry in general on March 1.

"Due to the constant and continual growth of the industry, it is doubtful whether we will have enough space to go around," said George E. Mills, show director, "and we expect this Exposition to be the largest and most successful of its kind ever held."

Full information regarding the Exposition can be secured by writing to 8th All-Industry Refrigeration and Air Conditioning Exposition, 1346 Connecticut Ave., N. W., Washington 6, D. C.

## AMERICAN BRASS OPENS IOWA OFFICE

The American Brass Co. announced the opening of a new district sales office in Cedar Rapids, Iowa. John N. Allen, formerly of the company's Chicago sales staff, has been appointed district sales manager.

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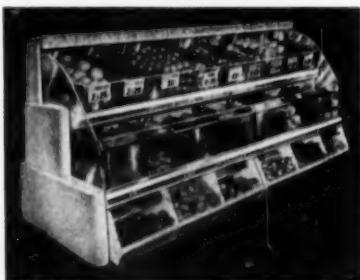
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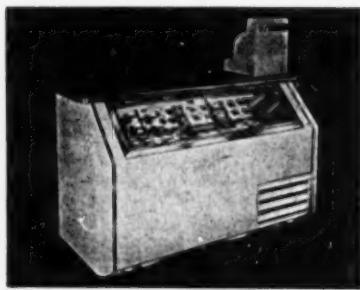
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## ILLINOIS MAN WINS CONTEST IN MIAMI

Antil Hightower, operator of a refrigeration business in Marion, Ill., was awarded a table-model television set for his 25-word statement telling which manufacturer's exhibit was most educational to him at the 10th Educational Conference and Exhibit in Miami, Dec. 5-7.

Second award, an electric toaster set, went to A. Simon, of Jacksonville, Fla., and third award, an electric iron, to J. M. Turner, of Montreal, Canada.

Of the more than 60 manufacturers who had exhibits at the Conference, contestants chose that of Alco Valve Co. as being of most educational value. Close second and third in this respect were Detroit Controls Corp. and Sporlan Valve Co. Mention of approximately 40 different exhibits were made by contestants who submitted entries in the contest, which was limited to service men, dealers, and contractor firms. Representatives of industry

trade magazines were judges.

Attendance figures for the Conference were not released, but officials of REMA and RSES expressed themselves as well satisfied with the turnout for the exhibit. Coming the farthest distance to attend the Conference was Kelvin Dawson, manager of the refrigeration service department of Miscalia Supply Co., Olympia, Wash. Dawson and his wife traveled more than 4000 miles to come to Miami, taking five days for the trip.

## NEW CO. TO SELL STYROFOAM IN N. Y.

The Dow Chemical Co. has named Styro Sales Co. of New York City a distributor for Styrofoam.

The new distributor will handle the expanded polystyrene plastic which is used in the low temperature insulation, buoyancy and decorative fields.

Styro Sales Co. is owned by Henry Pearlman; Bernard Greene is manager.



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JANUARY, 1953 • COMMERCIAL REFRIGERATION

## BLAZER IS NEW REWA PRESIDENT

Ben V. Blazer, of M. Blazer & Son, Passaic, N. J., was elected president of the Refrigeration Equipment Wholesalers Association (REWA) at the 17th annual meeting of the organization Dec. 8 at Hollywood, Fla.

N. K. Mason, of Mason Supply, Columbus, Ohio, was elected vice president; R. E. Warwick, Plumbing Wholesale Co., Jackson, Miss., was elected secretary; and H. W. Welker Jr., Hasco, Inc., Greensboro, N. C., was named treasurer.

Four new directors were named at the meeting. A. H. Holcomb Jr., Victor Sales & Supply, Philadelphia, was elected from Region 3 to succeed George J. Roche, of Roche & Hull, Baltimore; from Region 5, N. K. Mason was named to succeed himself, as was J. P. Glass, Chase Supply, Chicago, from Region 6. New director from Region 9 is W. C. Miesemer of Arizona Refrigeration Supply, Phoenix, who succeeds Merle F. Stutzman, of

Refrigeration Supplies Distributor, Los Angeles.

It was announced at the meeting that REWA's new executive secretary will be A. Starr Hull, who has had a long background of experience in association work. H. S. McCloud, who recently resigned this post, will continue "on duty" temporarily to help Hull acquaint himself with his new duties. Hull's home is in Columbus, Ohio, and it is expected the REWA headquarters office will be moved there shortly.

A speaker at the REWA meeting was Irving B. Hexter, publisher of Commercial Refrigeration & Air Conditioning. Discussing "The Wholesaler and a Sales Program", he recommended that each wholesaler study his own individual organization and assess its possibilities before definitely deciding on how far to go into the sales field. Merchandising know-how is a "must" for success in the sales field, and other special techniques required may be much different than those with which most parts

wholesalers are familiar, he said.

A lively discussion of "The Wholesaler and Package Merchandise" was presented by a panel of four speakers. Taking the "pro" point of view were E. L. Tramposh and Elmer H. Davey, while A. H. Holcombe and Joseph W. Cavaia held forth for the "con" side. Question and answer period following the discussions indicated a wide interest in this problem.

organizations is Arthur F. Tudury, president of Refrigerating and Power Specialties Co., San Francisco.

The Evis equipment will also be marketed through Refrigerating and Power Specialties Co.'s branches in Portland, Seattle, Tacoma and Stockton, Calif.

## 10 "SCHOOLS" HELD BY WESTINGHOUSE

As a sales aid for distributors of its products, Westinghouse Air Conditioning Div. has been conducting a series of Application Engineering Schools in 10 strategic locations throughout the country. Representatives of all the division's distributors in the meeting areas were invited to attend the three-day course. Subject material covered every facet of air conditioning from system design to equipment selection. Conducted by a headquarters team, the course employed many training aids such as blow-up charts, films, slides, strip films, and work sheets.

## DOUBLE YOUR SAVINGS

in time and labor . . . with

### the one-formula X-PANDO PIPE-JOINT COMPOUND

Contractors, Installation and Service Men in the refrigeration field, industry, government, the armed forces—all agree that X-Pando Pipe-Joint Compound is far superior to litharge and glycerine for freon, ammonia, brine and all refrigerant liquids and gases.

An X-Pando application costs less, goes much further; it's less brittle and is easy to take apart. It ends leaks. It corrects thread imperfections; withstands deflection, vibration, and extreme temperature changes.

X-Pando is the recommended exclusive compound STANDARD in the refrigeration field. It is the ONLY compound that expands as its sets. You need only this ONE FORMULA for all jobs.

IF IT'S WORTH INSTALLING—IT'S WORTH SEALING RIGHT—  
WITH X-PANDO PIPE-JOINT COMPOUND AND CAUXEAL.

X-Pando Products are always sold on a Money-Back Guarantee! Available at your local Refrigeration Wholesaler or your Industrial Supply House. Nationally distributed by York Corporation through their authorized outlets.

### X-PANDO CAUXEAL

that wonderful refrigerant Sealer that's applied like putty, but is better than putty. Always remains pliable — yet it seals indefinitely.

Cauxeal is the perfect seal for ducts, conduits, air-conditioning units and innumerable other uses. It's simple, fast, economical, needing no special preparation. It's watertight, fume-proof, vermin-proof and acid-resistant. It sticks to anything!

You can't waste Cauxeal. Simply put all excess Cauxeal back into the container for re-use at any time. Store it anywhere — it'll always remain "workable."



## INSTALL COMPLETE

Now you can figure complete jobs with Hirsh Pre-Bilt Shelving Equipment! The Hirsh Plan enables you to sell wall and gondola units that the merchant can assemble himself.

EASY TO INSTALL  
FULLY ADJUSTABLE

HEAVY DUTY CONSTRUCTION  
PROFITABLE FOR YOU



Write now for complete information—no obligation!



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X-PANDO CORPORATION  
Manufacturers of Quality Industrial Products for over 25 Years  
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Only Remington offers such a complete line of room air conditioners.

## Want profits from room air conditioning?

### Add Remington to your line

You know how fast room air conditioning sold out this year. You know how big—and how ready—the market is.

And, because you *know* refrigeration and air conditioning, you will want to have Remington, the line so complete—consoles as well as window units—that it gives an expert the opportunity to sell the *right* unit for virtually any room.

Get the full details of Remington's new dealer franchise. It may well make '53 your biggest year. You really should write today. Remington Air Conditioning Division, 13-1 Willey Street, Auburn, New York.



SPECIALISTS IN  
AIR CONDITIONING

**AUBURN, NEW YORK**

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### JARROW OPENS PLASTIC DIVISION



NEWEST MEMBER of the family, Ellen Jarrow, presses the starting switch at the Plastics Division, the newest operation of Jarrow Products of Chicago. Ellen is under the watchful eye of her father, Stanley L. Jarrow.

\* \* \*

### JARROW OPENS NEW PLASTIC DIV.

Jarrow Products, producer of refrigerator door gaskets and other rubber extrusions for over 25 years, announces the opening of its new extruded plastic division. Situated within a few blocks of the home office at 420 N. LaSalle St., Chicago, the new plant is fully equipped with the latest in modern plastic extrusion machinery and equipment.

Commenting upon Jarrow's entrance into the plastic extrusion field, Col. Harry W. Jarrow, founder and head of the company, said, "Our research reveals great possibilities for plastic compounds in the refrigerator door gasket field."

Among the plastic compounds developed by Jarrow Products for the refrigeration field is Jarene "B" Vinyl, which is produced in a wide range of colors. Tests reveal Jarene "B" has longer life than even high grade natural rubber, and offers ready adaptability to a variety of shapes.

In addition to producing plastic refrigerator door gaskets, the company also manufactures plastic duct seals,

weatherstrip, flexible tubing, glazing channels and many other plastic extrusions for manufacturers of original equipment. While current production is largely to flexible extrusions, the plant is geared to turn out both rigid and semi-rigid extrusions in plastic.

### FOAMGLAS OPENS NEW K. C. OFFICE

Pittsburgh Corning Corp. has announced the opening of a district sales office in Kansas City. Howard G. Jones has been appointed district manager of the new office. Jones was formerly a field representative for the company in the southern Illinois, Kansas and Missouri area.

The office will service distributors of PC Glass Blocks and Foamglas, and promote the sale of these products in the states of Kansas, Missouri, Montana, Nebraska, western Iowa, Idaho, northern Texas, Utah, Wyoming, Oklahoma, Colorado and New Mexico. W. T. Clark, H. R. Conant, Jr., J. P. Dillon, R. L. Perkins and R. B. Shofstall will represent the firm in the territory covered by the office.



Chase Copper Refrigerator Service Tube (1/8" to 3/4" diameter) comes in this handy new package . . . makes it easy to use, store, identify and ship.

### ...Because It's CHASE COPPER REFRIGERATOR SERVICE TUBE

You, too, will prefer Chase Copper Refrigerator Service Tube — from the first time you use it! You'll find it easy to work because it's soft . . . easy to bend because of its uniform temper. Controlled annealing means tube that is clean, bright, oxide-free.

The new Chase end seal keeps it clean and dry inside. Made in 1/8" to 3/4" diameters and standard 50' lengths.

# Chase BRASS & COPPER

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

• The Nation's Headquarters for Brass & Copper

Albany	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston	Newark	Rochester	(Sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	

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and AIR CONDITIONING • JANUARY, 1953

# COMMERCIAL Refrigerator SALES NEWS

## How One Successful Distributor Reduced His Operating Expenses

*A condensation of an address presented by Ray H. Winther, Ray Winther Co., San Francisco, Calif., distributor, at the sixth annual convention of the National Commercial Refrigerator Sales Association.*

**H**OW To Reduce Operating Costs" is certainly an interesting topic, but to me it's just another way of saying "How To Make More Money".

Actually, to reduce operating cost, dollar-wise, in the face of ever increasing labor and material cost, is a practical impossibility. The real problem is how to make our gross profit larger than our operating cost and thereby produce a profit.

If we can make our gross profit increase faster than our cost of doing business we automatically produce this greater profit.

To make one office girl or mechanic do the work of two, or possibly have two do the work of three, immediately implies poor management, because it shows either a needless over-supply of man power or a drop off of business volume; either of which is equally bad. Our approach to this problem has been rather unusual but it has produced results.

Needless to say, we watch our major and minor expenses and we have a very careful check on our mechanics cost, truck cost, etc., but the biggest single item of expense in our business is sales expense, and it has given us a great deal of concern.

This one item was 9.3% for our last fiscal year, while this figure represents a considerable increase over our previous year, which was abnormal because of the Korean buy-

ing splurge and the high business volume, was actually only 1.03% higher than two years ago, which was a normal and comparable year.

To some this sales expense may still seem too high, but we feel that it is, in part, justifiable because it includes new plowing, or the training cost of two new salesmen who are not as yet producing their prorata share of business volume.

How can we reduce this selling cost and in turn reduce operating cost or show more profit?

We have done it by increasing the salaries and incentive compensation to our salesmen.

First of all, by so doing we have been able to retain the best salesmen in the industry. Secondly, we are now justifiably able to make greater demands of our men and we now have men who are adaptable to training—our type of training—with the result that we have professional salesmen on our staff.

These men, because of the added incentive compensation, have been able, in spite of difficult competitive conditions, to increase our gross profit by 1.72% while raising our selling cost by only 1.03 %, or a net increase of .69% in our net profit.

How did we do this? First we made the salesmen understand that in order to pay more we had to collect more. Secondly, we reminded our men that there are such figures as 3, 4, 7, 9, and 12, instead of the plain old 5, 10, and 15.

These figures represent discounts from established prices when quantity purchasing is involved. Our men had been in the rut of working in even fives with the result that the discounts were 5, 10 and 15% but never 7, 9 or 3%.

This rut had been one that we of management had made for our men because our incentive compensation plan was based on a plan of 1, 2½

### Tyler Men Preview 1953 Products



**GETTING THE FACTS** on Tyler Fixture Corp.'s program and products for 1953 are these sales agents of the company, shown during a recent meeting at the Tyler plant in Niles, Mich. The company holds three or four of these meetings annually. The program for this particular meeting included a trip through the Tyler plant, and talks by Tyler executives Bob Tyler, George Mayhew, Joe Krall, Ray Greene, Jack Dickie, Hugh Cooper, Art Perez, Les Fischer, Art Curran and George Sink. Topics covered included prepackaging room arrangements, new products, sales promotion materials, use of visual sales aids, installation and servicing information, traffic, merchandising methods, and financing.

or 4%, depending on the category in which the deal fell. Therefore, on a deal where a concession of 10% was made, the compensation to our man was 2½% added. But on deals of 10-15% concession, our added compensation dropped to 1% with no intermediate steps.

Salesmen, being human as we all are, took the line of least resistance and gave away all of the 15% allow-



able because it meant nothing to them. Under our new plan, which now seems obvious, for every percent which the salesman retains, we add .3% of that percent to the salesman's incentive compensation, with the result that we now have practically all high deals.

With the data which we have gathered from our monthly reports, we have developed a chart which definitely proves our selling costs.

We find that the man who sells only about \$35,000 quota volume per year is a loss to us and to himself because his selling expense to us is 13-15%. On the other hand, the man who can sell \$70,000 or more is not only beginning to earn himself a good salary but, more important, he has reduced his selling cost to about 8%, which means more net to the firm.

It has been our experience, therefore, that a good man, well paid, will produce more and better volume and thus, will earn more money for himself and for the company.

We believe that the development of professional, high-class salesmen is the best solution to "How To Reduce Operating Cost."

## NCRSA COMMITTEES FOR COMING YEAR NAMED

Irving W. Shell, president of National Commercial Refrigerator Sales Association, has recently announced appointment of the following committees to serve for the coming year:

Joint Committee on Distributor-Manufacturer Relations: Chairman, Frank D. Stella, F. D. Stella Products Co., Detroit; W. J. Stelpflug, Hussmann Refrigeration, Inc., J. W. Bostwick, McCray Refrigerator Co., and F. W. Owen, F. W. Owen Co., Lorain, Ohio.

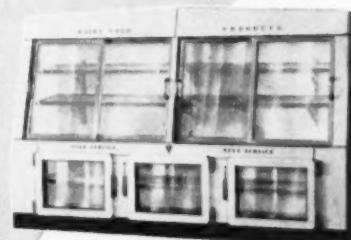
Membership Committee: Chairman, R. J. Wischusen, Engineering & Refrigeration, Inc., Newark; Nat Silverstone, Silver-Stahl Corp., San Francisco; E. B. Ward, Baker-Ward Inc., South Bend; Paul H. Broering, P. H. Broering Co., Cincinnati; George F. Wiedemer, Cable-Wiedemer Inc., Rochester, N. Y.; I. Rosenberg Jr., Refrigeration Equipment Co., Pittsburgh; Dudley M. Cawthon, Dudley M. Cawthon Co., Miami; S. W. Davis Jr., S. W. Davis Jr., Inc., Greensboro, N. C.; Marshall Webb, Marshall Webb Co.,

## Here's a Pair of Profit Makers for You



**Viking CC-120 Crispy-Cold . . . best seller for fruits and vegetables**

Features Viking Dew-Mist Control...keeps produce fresher 3 to 5 times longer. Gives refrigeration plus high humidity... eliminates wasteful spoilage. The profit potential, attractive appearance, efficiency and economy of the CC-120 CrispyCold means that it sells itself to your customers. Available in 90 and 120 inch sizes.



**Viking D-120  
best seller  
for dairy products**

Designed for maximum eye-appeal...buy-appeal. The Viking D-120 displays dairy items properly...invitingly...keeps them fresh, clean and protected. Controlled humidity saves merchandise...saves operating expense. The Viking D-120 has all the quality features that make all Viking Cases best sellers...for you and your customers. Available in 90 and 120 inch sizes.

### Mail Coupon TODAY

To  
Sell More,  
Sell **Viking!**  
Inquire today about a

**SINCE 1904**

**QUALITY LEADER**



**Viking**  
franchise.

Viking Refrigerators, Inc.  
7500 Wilson Ave., Kansas City 3, Missouri  
 Please send me complete information on Viking CC-120 CrispyCold and Viking D-120 best seller display cases.  
 Tell me about the availability of Viking Franchises in my area.

Name \_\_\_\_\_  
Firm \_\_\_\_\_

Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

**VIKING**  
REFRIGERATORS, INC.  
7500 Wilson Ave., Kansas City 3, Mo.

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San Antonio; H. E. Humphreys, H. E. Humphreys Co., Concord, N. H.; M. L. Garza, Laredo, Tex.; Wymau L. Ansley, Jamestown Refrigeration Sales, Inc., Jamestown, N. Y.; Z. O. Jennings, Jennings Fixture Co., Inc., Little Rock, Ark.

### BALTIMORE JOBBER MOVES

Baltimore Refrigeration Supply Co. has moved its office and warehouse to new quarters at 2244 Orem Ave. (at Parkwood), off of the 2300 block of Reisterstown Road.

### NCRSA SETS DATES FOR 1953 MEETING

The seventh annual convention of National Commercial Refrigerator Sales Association has been scheduled for the Statler Hotel, Cleveland, on Nov. 9 and 10. The dates coincide with the time of the Eighth All-Industry Refrigeration and Air Conditioning Exposition, which will be held in Cleveland from Nov. 9 to 12.

BUY FROM YOUR  
REFRIGERATION WHOLESALER

**WAITING FOR YOU...**

**A TWO BILLION DOLLAR U. S. MARKET**

**SODAMASTER**  
Self-Contained, Refrigerated Dispensers

**MIX-MONITOR**  
5-in-1 Faucets  
3 Flavors Plus Jet and Soda Stream

**SUPERCHARGER CARBONATORS**  
100 Gals. Per Hour

**CHECK THESE ADDED ADVANTAGES**

- Patented, Exclusive Features
- Fully Warranted
- Nationally Advertised
- Factory Sales and Service Assistance
- Preferred by Leading Users
- Laboratory Tested and Approved

WHEREVER SOFT DRINKS ARE SERVED—  
THERE IS A MARKET FOR  
CARBONIC DISPENSING EQUIPMENT

#### MAIL THIS COUPON TODAY

Please send me prices and literature outlining the opportunity now open to me to make bigger profits selling Carbonic Beverage Dispensing Equipment.

Name \_\_\_\_\_

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General Offices: Canfield, Ohio, and  
1851 Randolph St., Los Angeles, Calif.

### NEW DEPT. HANDLES G-E ROOM COOLERS, FREEZERS

Establishment of a specialty refrigeration products department to have responsibility for home food freezer and room air conditioner operations has been announced by the General Electric Co. major appliance division.

Harold B. Donley, who headed the now-discontinued room cooler department, will be general manager of the new department, according to Clarence H. Linder, general manager of the division.

Linder said that food freezers and room air conditioners had been grouped in one department to give a better balance of operations for the division's product departments.

The room air conditioner business was transferred from the air conditioning division at Bloomfield, N. J., to the major appliance division at Louisville last January. Food freezer operations formerly were a part of the household refrigerator department.

### BOOK REVIEW

**Title:** A Treasury of Collection Letters and Ideas

**Author:** Bernard L. Trippett, extension instructor in marketing, University of Mississippi

**Publisher:** Universal Business Service, Greenwood, Miss.

**Price:** \$2.00

This book treats in a practical, down-to-earth fashion the tough problems of day-to-day collection management. Actual letters are reproduced to cover every collection situation in consumer and mercantile credit.

All collection effort is divided into five stages—memorandum stage, attention stage, gradient stage, insistent stage, and coercive stage—each of which is illustrated by sample letters specifically designed to handle anything from a mere oversight to twilight-zone accounts.

The unearned discount problem, the problem of a debtor trading elsewhere, the use of color in collection letters, and the advisability of using "stunt" letters, are among many collection problems analyzed.

### TYLER DONATES UNITS TO MICHIGAN COLLEGE

A gift of \$1,200 worth of condensing units has been made to the refrigeration curriculum at Western Michigan College, Kalamazoo, by Tyler Fixture Corp. Six units, ranging from 1/3 to 1/2 hp in size, were received through Art Perez, Tyler service manager. The units had formerly been used in Tyler's experimental laboratory.

## DOLLAR VALUE OF SALES UP 11% IN 3RD QUARTER

Sales by members of National Commercial Refrigerator Sales Association during the first nine months of 1952 showed an increase of 11.1% in dollar value over those for the same period of 1951, according to statistics reported by NCRSA headquarters.

Dollar value of sales during the third quarter of 1952 alone were 25.8% higher than for the corresponding three-month period of 1951.

## KELVINATOR REALIGNS SALES DEPT. POSTS

Five new executive appointments and six new management assignments in the Kelvinator organization have been announced by D. A. Packard, general sales manager of the Kelvinator Division.

The executive changes are part of a general realignment of responsibilities in the company's sales department caused by plans for expansion into broader appliance fields.

New appointees are: J. W. Keuping, assistant general sales manager; C. J. Coward, retaining the title of merchandising manager but assuming marketing and supervision of new product development; W. L. Jeffrey, sales manager of refrigeration and range products; H. L. Travis, manager of retail distribution; and H. A. Valencourt, manager of wholesale distribution.

In new management posts are: R. A. Demmer, eastern regional manager; F. E. Howell, sales manager, Leonard Div.; F. J. Worden, manager of home freezer sales; J. B. Johnson, manager of laundry equipment sales; W. G. Kronauge, sales manager special products; and R. L. Runkle, manager of marketing and organization.

## SWEDEN APPOINTS NEW SALES, SERVICE AGENCIES

Appointment of 10 new dealers and four servicing agencies is announced by Sweden Freezer Mfg. Co., Seattle. The following firms now carry a complete line of Sweden equipment.

Austin Restaurant Supply Co., Inc., Austin, Texas; Fischer Distributing Co., Poplar Bluff, Mo.; Arctic Re-

frigeration, Bangor, Me.; Frank Parlamis, Inc., Brooklyn; Longe Equipment Co., Schenectady, N. Y.; Egyptian York Corp., Centralia, Ill.; Cable-Wiedemer, Rochester, N. Y.; Fred C. Myer Sales Co., Belleville, Kan.; Inland Refrigeration, Wenatchee, Wash. and Moore Brothers Sales Co., Pasco, Wash.

New service agencies are: Heidt's Refrigeration Service, Davenport, Ia.; Arthur Schmidt Refrigeration, Lynbrook, N. Y.; Crook's Refrigeration, Yakima, Wash.; and Blevins Refrigeration, Pasco, Wash.

## NEW USAIRCO REP.

Mechanical Equipment Co., of Knoxville, has been named manufacturer's representative for eastern Tennessee by the United States Air Conditioning Corp. Mechanical Equipment, which will handle USAIRCO's air conditioning, heating and ventilating line, was recently formed by Joe T. Bailey, in association with Walter Bradley.

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

# "Service-Master is the ideal air conditioning service body"



says **MR. ALEXANDER ORR, JR.**  
CONDITIONED AIR CORP., MIAMI, FLA.



"Service-Master has practically eliminated return trips to our shop. With a cargo area for bulky items, and well organized compartments for tools and parts, we can now carry a complete shop to every job. In a year's time, we've saved an average of more than one-half hour per day. In dollars, that amounts to almost enough to buy another Service-Master Body."

If your present truck equipment isn't adequate for your work, why not get the full story on the efficient Service-Master Body? Just clip the coupon below . . . paste it on a post card . . . and mail it. You're under no obligation, of course.

**McCABE-POWERS  
AUTO BODY COMPANY  
5900 N. BROADWAY • ST. LOUIS 15, MO.**

Please send me literature and complete information about Service-Master

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_ BCD

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## ALUMINUM HANDWHEELS ON NIBCO VALVES

All Nibco low pressure valves now have aluminum handwheels seated on serrated stems to insure proper alignment and positive seating, it has been announced by Northern Indiana Brass Co.

The handwheels are moulded for comfortable, non-slip gripping, even when wet. "No-hete" design makes them easy to handle on hot water lines, the company says.

Modifications in manufacturing process provide smoother interior sur-

face. Closer tolerances between finished surfaces minimize packing wear, eliminating any possibility of leakage around the stem, Nibco officials say.

## GRAFF APPOINTED TO NEMA TAX COMMITTEE

G. E. Graff, sales manager of Ranco, Inc., has been appointed to serve on the Excise Tax Advisory Committee representing the Automatic Temperature Controls Section of the National Electrical Manufacturers Association.

## HERE'S HOW IT WORKS



Douglas S. Sterner (left), manager of refrigeration sales for General Controls Co., explains one of his company's refrigeration controls to Charles G. Hanson and Herbert Hanson of Refrigeration Specialties Co., two of the 200 persons who were guests of General Controls at the official opening of its new midwestern plant in Skokie, Ill. The \$750,000 plant contains 60,000 sq. ft. of factory, office and warehouse space.

## United harmony of design, appearance and value!

Note your own experience. Only an UPRIGHT FREEZER can give you large capacity service in a limited floor area . . . only UNITED'S UPRIGHT FREEZER has the appearance and convenience that are demanded today.

And here's a new note. UNITED'S UPRIGHT FREEZER has contact coils built into top, bottom and each of the four shelves.

Therefore, each shelf is an individual 'fast freeze' unit . . . built in for faster freezing and better holding qualities.

Demand the freezer that does the most for you—UNITED'S UPRIGHT FREEZER—and your sales will show you why.

For complete information phone, wire or write today

### REFRIGERATOR COMPANY

Locust & Walnut Streets  
HUDSON, WISCONSIN  
EXPORT SALES DIVISION  
Scheel International, Inc.  
4237 N. Lincoln Avenue, Chicago, U. S. A.

*United*

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## NEW FRIGIDAIRE PLANT OPENED IN CANADA

A new, \$11,000,000 Frigidaire plant, providing more than 500,000 sq. ft. of factory floor space, was opened recently at Scarborough, a Toronto suburb.

Attending opening ceremonies (October 16) were C. E. Wilson, General Motors president; Mason Roberts, Frigidaire general manager and GM vice president; H. F. Lehman, Frigidaire general sales manager; the Hon. C. D. Howe, Canada's minister of defense production, trade and commerce; Premier Leslie Frost, of Ontario; and some 1,000 other guests.

The plant more than doubles manufacturing facilities of Frigidaire Products of Canada Ltd., a subsidiary of Frigidaire division in Dayton. It has capacity for production of more than 1,000 units a day.

At present the plant is turning out electric refrigerators, electric ranges, beverage coolers, ice cream cabinets, food freezers, and air conditioning equipment.

## REPRESENTS MARLO COIL

Marlo Coil Co. has announced the appointment of Hairston & Co. of Atlanta, Ga., to represent the firm in that area. Guy Hairston will be assisted by Wendell Endsley, sales engineer.



## **Wagner Motors furnish plenty of power for pumps**

Motors that drive pumps and compressors need plenty of electrical and mechanical stamina to hold up under the hard, steady grind expected of them.

Fitting the right motor to your pumps is not a problem of special motor designing and building, but of choosing a standard Wagner Motor suited to the job. Wagner Motors are diversified in design and can be readily adapted to a wide range of pump applications.

Wagner Motors are chosen for thousands of pumps because they can deliver plenty of sure,

easy, continuous power. They require very little attention—Wagner Motors are designed to keep maintenance at a minimum. They give the kind of service you want—more than sixty years of motor building experience stands behind every motor bearing the Wagner name.

Improve the performance, economy and dependability of your product by choosing Wagner Motors. Bulletin MU-185 gives information on the complete line. Let a Wagner engineer discuss your motor needs with you. Consult the nearest of our 32 branch offices, or write us.

### *it's to your advantage to standardize with Wagner:*

When you standardize on Wagner Motors—you get the advantages of a liberal warranty... of nationwide service facilities, with on-the-spot service, replacement motors and parts available from 25 Wagner-owned Service Branches and more than 750 Authorized Service Stations. You can choose from a wide variety of types and sizes (from 1/125 to 400 hp).



**WAGNER ELECTRIC CORPORATION**  
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS - TRANSFORMERS - INDUSTRIAL BRAKES  
AUTOMOTIVE BRAKE SYSTEMS - AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES

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## it's a GEM!



### FOUR DOOR BAKER'S BOX

Gem Refrigerator Company, custom maker for 30 years, now makes competitively priced commercial refrigerators with custom features.

### protected territories open!

Don't miss out on the greatest sales opportunity to come your way. Get details.

**GEM**  
REFRIGERATOR CO.

165 W. Wyoming Ave.  
Philadelphia 40, Pa.

## NEW! 1953 KOCH CATALOG



### Will Bring You Extra Business, Extra Profits!

Many of your customers and prospects need slaughtering and meat processing equipment: packing houses, locker plants, sausage and rendering plants, institutions and markets that process their own meat.

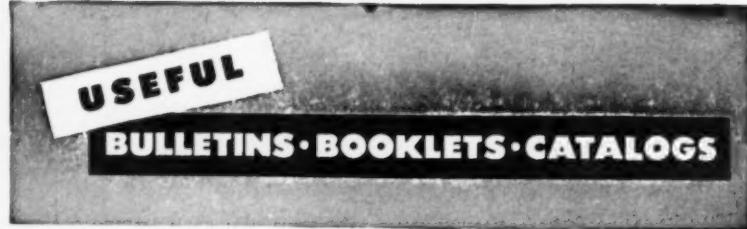
Not necessary to carry inventory. KOCH Catalog is your stock and showroom. Prompt shipment on orders. Many new, exclusive products. We offer largest selection at competitive prices. Famous KOCH Free Engineering Service will help you sell.

Write today for Catalog No. 77 and dealer proposition.

**K O C H S U P P L I E S**

2520 Holmes St., Kansas City 8, Mo.

Circle No. 44 on Reader Service Card



The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

**PROFITS POSSIBLE** in the merchandising of continuous frozen custard are charted in a new three color bulletin (TH-852) describing and illustrating a new twinhead, two flavor continuous custard freezer released by Mills Industries, Inc. Featured in the bulletin are details of the new design, profit charts, mechanical specifications, and interior and exterior photographs of the equipment.

Circle No. 111 on Reader Service Card

**COLD INSULATION** construction products manufactured by American Asphalt Co. are described in a bulletin issued by this firm. The company's lines of insulation adhesive, cement, and weathercoating are featured. Typical applications for walls and floors of all types and both over and below-ceiling construction applications are outlined. A table listing uses of Laykold products with various types of insulation or membrane is included.

Circle No. 112 on Reader Service Card

**GENERAL INFORMATION AND FEATURES** of standard gage types are given in a new bulletin recently issued by the Jerguson Gage and Valve Co., manufacturer of gages and valves for the observation of liquids, water columns, trycocks, gage illuminators and special design sight glasses, retort gages, etc. made to fit individual requirements.

Circle No. 113 on Reader Service Card

**PRE-BUILT UPRIGHT SHELVES** that can be adjusted, rearranged, lowered, raised, and taken out without the use of tools are featured in S. A. Hirsh Mfg. Co.'s new 12-page bulletin. Shelving displays, gondola units, wall shelving and standard steel uprights are described. Illustrations of each type giving all dimensions are included. Accessories headlined in the bulletin include a fully adjustable leveling device.

Circle No. 114 on Reader Service Card

**A NEW GENERAL CATALOG** on the Thermobloc direct-fired heating unit has been issued recently by the Pratt-Daniel Corp. Featured is a full-color cutaway of one of the company's units, and both photographic and line illustrations of various other models. Specifications and dimensions on all models are listed. The catalog is designated as NGC-10-52.

Circle No. 115 on Reader Service Card

**PRACTICAL HELP** in planning piping and equipment layouts is included in a new bulletin on standard and special fabricated fittings issued recently by the Naylor Pipe Co. Data includes specifications and prints on standard fittings for light-weight pipe. It also presents illustrations of special fabrications designed to save time and reduce material costs in modernizing piping systems. The bulletin is No. 525.

Circle No. 116 on Reader Service Card

(More Useful Literature on page 53)

When your business depends on

**Cold**

YOU CAN DEPEND ON

**Kelvinator!**



**For HEAVY-DUTY JOBS,  
Kelvinator offers a range  
of 15 OPEN-TYPE  
Condensing Units!**



Kelvinator Model O-75  
( $\frac{3}{4}$  H. P. Air Cooled)

**Dependable**, trouble-free, uninterrupted operation is an absolute "must" in every commercial installation . . . take walk-in refrigerators for example. Even one break-down in the cold-making equipment can cost the owner many hundreds of dollars. That's why businessmen the world over, who depend upon constant low temperatures for profits, buy Kelvinator. They just can't afford to take chances. Kelvinator open-type units range from  $\frac{1}{4}$  H.P. up to 5 H.P. Get Kelvinator for your next installation . . . you'll find the exact size to fit your particular job.

Kelvinator also offers 16 Hermetic models—up to  $\frac{3}{4}$  H.P., including the new Freon-22 models. For full information on Kelvinator's complete line of commercial refrigeration equipment, contact your Kelvinator distributor . . . or write Kelvinator, Division of Nash-Kelvinator Corp., Detroit 32, Michigan.

**For Profit Today . . . Tomorrow . . . and Always . . .**

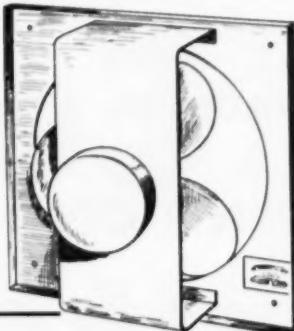
Depend on

**Kelvinator**

**SPECIALISTS IN REFRIGERATION SINCE 1914**  
Circle No. 45 on Reader Service Card for more information  
and AIR CONDITIONING • JANUARY, 1953

Circle No. 47 on Reader Service Card for more information

**SPECIAL  
OFFER  
TO  
DEALERS**



**HEAVY DUTY**

**14" EXHAUST FAN** **\$12.95** only  
net

Look what you get for this bargain price; totally enclosed 1/15 hp motor; Torrington Aristocrat fan blade; sturdy steel frame in beautiful hammertone finish. And only \$12.95. Worth, at the minimum \$22.00 wholesale.

This offer is good for a limited time only so get your order in today.

Write For Catalog on Complete Line.

**STANDARD ELECTRIC**  
MANUFACTURING CO., INC.

West Berlin 53, New Jersey

# DEALERS WANTED!

We need a few additional dealers to handle our fast moving new line of bakery freezers. These freezers actually pay for themselves out of reduced costs and increased sales.

The eight-door model illustrated here is a recent addition. This model is available with either automatic self-defrosting mullion coils or vertical freezer plates. The entire front, including doors is made of heavy gauge stainless steel. A special corrosive resistant, aluminum alloy is used for the balance of the exterior. The interior is a one-piece welded aluminum tank.

Take advantage of this opportunity by writing us today on company letterhead.

**Traulsen**

45-15 Thirty-Seventh Street, Long Island City 1, N. Y.  
Telephone: Stillwell 4-2825

Circle No. 49 on Reader Service Card for more information

## USEFUL LITERATURE . . .

*Continued from page 56*

**NEWS OF A NEW DEVELOPMENT** in fractional horsepower electric motor selection, the "Rota-Volt" selector, is contained in a new bulletin issued recently by the Brown-Brockmeyer Co., Dayton. The "Rota-Volt" feature, the company says, makes possible four different combinations in rotation and voltage from one standard motor. It is an inbuilt feature that locks in position. This and other features of the company's motor line are outlined in the folder.

Circle No. 117 on Reader Service Card

**BECAUSE MOISTURE ISN'T PINK** is the title of a 32-page bulletin put out by Pittsburgh Lectrodryer Corp. which explains how dehumidifying equipment solves moisture problems for industry. Bulletin No. 222 is illustrated by 70 photographs and diagrams of actual installations. Included also are descriptions of many production, handling and storage problems solved by installation of dehumidifying equipment.

Circle No. 118 on Reader Service Card

**THE COMPLETE STORY** on surface dehumidification units for commercial and industrial applications is told in a 32-page bulletin presented by Westinghouse Electric Corp.'s Sturtevant Div. Catalog 1660 details construction features and shows a typical set of specifications. A tested procedure is presented for determining the size, giving all the formulae, unit data, psychrometric data, and coil data necessary to the calculations. Information concerning particulars for installation and erection of the dehumidifiers is included.

Circle No. 119 on Reader Service Card



**Traulsen**

45-15 Thirty-Seventh Street  
Long Island City 1, New York

Please send us full information on Traulsen's new  
Bakery Freezer

Name

Street

City

**NEW**

# PRODUCTS

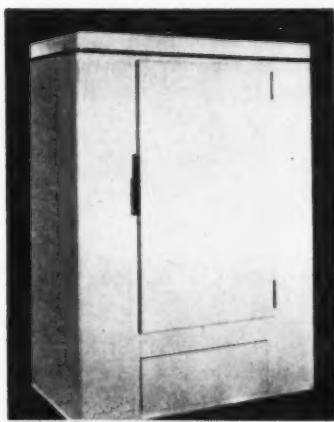
For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

## Upright Freezer

**Product:** New 22 cu. ft. upright freezer.

**Manufacturer:** Fogel Refrigerator Co., Philadelphia.

**Features:** Designed for use in institutions, restaurants, markets, homes and farms, Model RF-22 has capacity of 800 lbs. of frozen food and "upright" design affords easy, eye-



level accessibility. Horizontal heavy-duty freezing plates permit "quick-freezing" by the user. Cabinet is all welded steel construction with heavy-duty commercial type flush hardware. Outside is hi-baked white enamel finish. 1/3 hp refrigeration unit is hermetically sealed, on pull-out base. 5-year warranty on compressor unit. Cabinet is 70" x 26 1/2" x 48".

Circle No. 131 on Reader Service Card

## Bottle Cooler

**Product:** "Dry-Kool" bottle cooler, 1953 model.

**Manufacturer:** United Refrigerator Co., Hudson, Wis.

**Features:** New unit is finished in brown Dulux and stainless steel, and retains all features of previous "Dry-Kool" units. Even cooling assured

by means of blowers mounted every 2', blowing directly across evapora-



tor coil. This increases cooling capacity and maintains ideal cold air circulation. Model styling includes convenient "Lift-A-Way" disappearing door, built-in bottle decappers flush with cabinet, and over-all streamlined appearance accentuated by rounded corners and slanted top. Models offered in various sizes and types to fit all cooling requirements.

Circle No. 132 on Reader Service Card

## Water Conditioner

**Product:** Evis water conditioning unit.

**Manufacturer:** Evis Mfg. Co., San Francisco.

**Features:** Evis unit is a catalyst which alters physical behavior of water, but does not change it chemi-



cally. Its application in refrigeration and air conditioning field is to condensers, cooling towers, and other water-using equipment. Utilizes new principle of physical treatment said

to operate as equivalent of colloid protective action. Uses no chemical additives or renewals of any type. Manufacturer claims unit not only effectively prevents formation of scale deposits in condensers, cooling towers, and other water-using devices, but in addition disintegrates scale already formed in the equipment prior to use of the Evis unit. Operates without additional attention. Installed on main cold water feed line for best operation, except in cases where amount of make-up water is less than 3%, when installation within circulation system is recommended. Manufacturer recommends periodic bleeding of system during de-scaling period (30 to 40 days), and thereafter at rate of 1 gal. for every 20 to 40 gals. of makeup to avoid over-saturation of mineral matter in the water.

Circle No. 133 on Reader Service Card

## Gas Torch Line

**Product:** New and improved line of Prepo gas torches with six interchangeable burners and tips.

**National Distributor:** Bell & Gossett Co., Chicago.



**Features:** New torch is smaller, lighter, hotter and has wider uses, plus greater economy, company claims. Six interchangeable burners and tips make torch adaptable to specific jobs. They include a utility burner for general purpose work; heavy-duty burner for greatest heat volume; pin-point burner for precision work; paint remover tip; diamond point solder tip; and chisel point solder tip. New torch weighs only a little over a pound, is 4" wide and 10 1/2" high, making it handy to use in cramped areas. Disposable fuel tank contains special hydro-carbon blend, eliminating flammable liquid fuel. Lasts from 1 1/2 to 4 hours

depending upon burner or tip used. Torch comes in all metal carrying case with space for extra fuel tanks.

Circle No. 134 on Reader Service Card

#### Ice Cubelet Maker

**Product:** New automatic ice making machine.

**Manufacturer:** Frigidaire Div., General Motors Corp., Dayton.

**Features:** Machine produces "cubelets"  $\frac{5}{8}$ " in size. It is claimed that the cubelets cool faster and last longer than crushed, chipped or flake



ice. New unit is similar in design and construction to company's present automatic ice cube maker except for cutting grid, which determines

size and number of cubes produced. Thickness of cubelets adjustable to meet individual requirements. Stainless steel storage bin holds approximately 10,000 cubelets; machine produces approximately 200 lbs. of ice per day. Powered by Frigidaire sealed compressor. Cabinet is counter-height; interior is porcelain finished and removable top has acid-resisting porcelain finish. Top can be used for display, storage, or working surface.

Circle No. 135 on Reader Service Card

#### Evaporative Condensers

**Product:** Redesigned and re-engineered line of evaporative condensers.

**Manufacturer:** United States Air Conditioning Corp., Minneapolis.

**Features:** Evaporative condensers (Model ECU series) being produced in six sizes with capacities from  $7\frac{1}{2}$  to 40 tons. A completely assembled unit, the evaporative condenser is ready for immediate operation. Versatile design permits it to be disassem-

NOW YOU CAN SEE

WHY EXPERTS AGREE IT'S

Owner

Contractor

Consulting Engineer

Maintenance Man

Operating Engineer

Serviceman

—for the FINEST in  
Evaporative Condensers and Cooling Towers

VISIT B.A.C. BOOTH NO. 939  
ASH & VE SHOW • JANUARY 26th-30th • CHICAGO

Yes, now you can see for yourself why B.A.C. Evaporative Condensers and Cooling Towers are rated tops among the key men in the Air Conditioning and Refrigeration field.

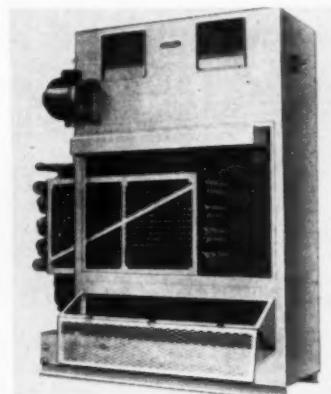
**RANGE:** World's Widest Range . . . B.A.C. Evaporative Condensers in sizes up to 260 TR and Cooling Towers in sizes up to 225 TR . . . **IN A SINGLE, FACTORY-ASSEMBLED UNIT!**

**ECONOMY:** Factory-assembled units simplify your installation and greatly your installation cost. Your initial cost is definitely lower.

**LONG LIFE AND DURABILITY:** All casings are rigidly constructed of galvanized sheets, providing full protection

against corrosion. All reinforcing structural are hot dipped galvanized. B.A.C. Evaporative Condensers have all prime surface condensing coils, fabricated of  $\frac{3}{8}$ " full weight steel pipe, hot dipped galvanized after fabrication. Suitable for either Freon or Ammonia application.

**EASE OF MAINTENANCE:** All B.A.C. Evaporative Condensers and Cooling Towers are provided with large access doors and removable air inlet louvers for easy inspection and maintenance of eliminators, sprays, coils and sumps.



bled in field and reset in any of 16 different arrangements to meet specific installation requirements. All panels and sections, including coil, eliminator, blower, air intake, etc., are removable and reversible, so that rearrangement can be effected quickly and easily. All sections are bolted together with rubber gaskets between for water tightness. All steel parts of condensers are hot-dipped galvanized after fabrication to assure corrosion-free operation. Heavy gauge construction includes 12 gauge tank, 12 gauge end frames and 16 gauge panels. Other features include low blower speeds for quiet operation, suitability for outside use, accessible bearings, prime surface coil section, and compactness.  $7\frac{1}{2}$ -ton equipment

## BALTIMORE AIRCOIL COMPANY INC.

2615 MATHEWS STREET • BALTIMORE 18, MD.

Exclusive  
Export Distributor . . .

JOSEPH MILLER  
11 BROADWAY  
NEW YORK 4, N. Y.  
Cable: JOMILLER



Circle No. 48 on Reader Service Card for more information

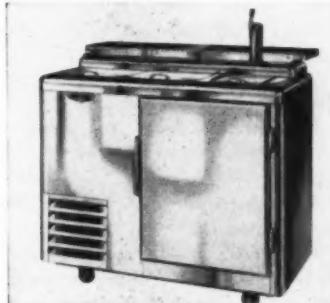
is 102" high, 51" wide, 37" deep; 40-ton equipment is 116" x 118" x 51".

Circle No. 136 on Reader Service Card

### Mobile Club Bar

**Product:** Mobile club bar.

**Manufacturer:** Punxsutawney Punxsutawney, Pa.



**Features:** New model has stainless steel cabinet surfaces, Formica covered bar top and is equipped with mark-proof rubber-tired castors. Capacity is  $\frac{1}{2}$  barrel bulk beverage and 6 cases of 12 oz. bottles. Unit is expressly designed for hotel, banquet and other group type service. Can be wheeled into service area and put into use quickly by plugging into any 110 volt a.c., 60 cycle circuit outlet. Drain facilities provided by means of an easily accessible, removable drain pan with large capacity.

Circle No. 137 on Reader Service Card

### Air Conditioning Unit

**Product:** New low-priced home "Weathermaker" air conditioning units.

**Manufacturer:** Carrier Corp., Syracuse.



**Features:** Designed for installation in existing homes equipped with warm air heating systems. Company claims it is lowest priced single-package cooling and heating unit ever introduced, and is most compact unit on market. Unit measures 3' x 3' and is 5' high. Has 2 ton cooling capacity, plus winter heating; cooling capacity is sufficient to handle 2 or 3 bedroom home up to 1200 sq. ft. in any section of country, company claims. Unit can be connected to normal ductwork or forced-air heat-

ing system; ductwork and outlet changes required in gravity warm air systems, making cost somewhat higher. Unit has burners available for either oil or gas heat. Auxiliary package available for air-cooled condensing in scarce-water areas, eliminating need for cooling tower. Automatic summer-winter operation provided, with year-around temperature control.

Circle No. 138 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

*See our exhibit*

*at the  
Air Conditioning*

*Exposition  
in Chicago's  
International  
Amphitheater*

*January 26-30, 1953*

**BOOTH 2-228**

**EVERYTHING IN AIR CONDITIONING**  
**usAIRco**

UNITED STATES AIR CONDITIONING CORP.  
MINNEAPOLIS 14, MINNESOTA



Circle No. 46 on Reader Service Card for more information

## Produce Refrigerator

**Product:** Model V produce refrigerator.

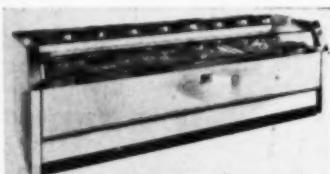
**Manufacturer:** Hussmann Refrigeration, Inc., St. Louis.

**Features:** No glass across cabinet front. Refrigerated air is directed over and through displayed products. Available in 11' lengths with endless type construction. Refrigerators can be joined for continuous display. Units are now in production.

Circle No. 139 on Reader Service Card

## Frozen Food Case

**Product:** New frozen food display case with automatic electric self-defrost.



**Manufacturer:** Koch Refrigerators, Inc., Kansas City.

**Features:** This case, Model 1510, is made in 10-ft. units, and will line

up end-to-end for continuous frozen food display. It also matches and lines up with other Koch self-service equipment. A "Salesmaker" display canopy with sliding plate glass mirror panels and fluorescent lighting is optional. Case has a capacity of approximately 1400 average size frozen food packages. 23 ft. of sales space is visible and accessible at product line.

Circle No. 140 on Reader Service Card

## "Roughing-In" Saw

**Product:** New all-purpose "roughing-in" saw powered by  $\frac{1}{4}$ " drill.

**Manufacturer:** RCS Tool Sales Corp., Joliet, Ill.

**Features:** Speeds up all types of key-hole or other on-the-job sawing. Held tightly against material to be cut, with guide used as fulcrum, tool is simply "rocked" into upright position and guided along cutting line. Built-in blower keeps saw cool and keeps cutting line from being obscured by chips or sawdust. Assortment of special blades permits cutting almost all types of material and  $\frac{3}{4}$ " stroke allows tool to be used in places

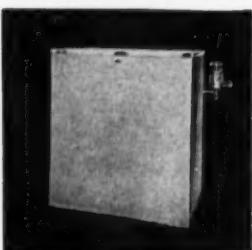
For Recognized Quality - Extra Gallons

## Sell Your Condensing Unit

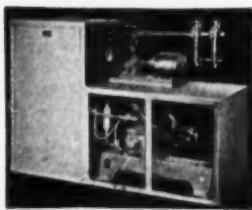
### Filtrine Water Coolers



Mess Hall—Cafeteria Cooler



Photographic—X-ray Cooler



Typical "Packaged" Circulating Chilled Water System

**Sell your condensing unit** with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.

Promote your own condensing unit sales with Filtrine's 20-year-life construction...high capacity... Super Storage... more than 40 years' dependability.

#### COOLERS FOR MESS HALLS — CAFETERIAS

Conform with Fed. Spec. 00-C-566b

#### COOLERS FOR X-RAY & PHOTOGRAPHY

#### PACKAGED CIRCULATING CHILLED WATER SYSTEMS

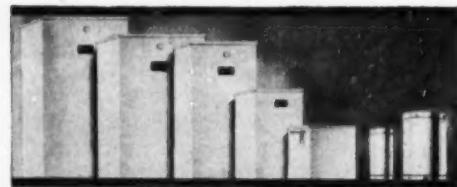
#### REMOTE COOLERS FOR ALL USES

**Sell your condensing unit** with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-filters. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.



**Sell your condensing unit** with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

**Sell your condensing unit!** Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



Remote Model Coolers

#### Write for Catalog and Specification Guide

FILTRINE MANUFACTURING COMPANY • BROOKLYN 5 • N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 50 on Reader Service Card for more information

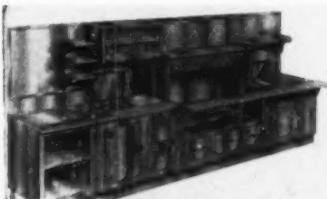
## Kitchen Units

**Product:** Stainless steel open kitchen assemblies.

**Manufacturer:** Stainless Food Equipment Co., Newark.

**Features:** By combining "Space-maker" assemblies, kitchen units can be built in various lengths to meet individual requirements of small food

service establishments. In length of 14 ft. it is possible to assemble coffee table; combination refrigerated short-order base with water station, including instantaneous heat exchanger and equipment stand complete with updraft; hot food table including



stainless steel insets and covers, pastry display case with slant-back mirrors, wall-shelf over hot food table and three tumbler storage shelves over water station. Other unit combinations can be made to suit virtually all space requirements. All back-bar equipment 24" or 31" deep and 74" high, matched for appearance.

Circle No. 142 on Reader Service Card

#### Pipe-Joint Compounds

**Product:** X-Pando Pipe Joint Compound and X-Pando Cauxal.

**Manufacturer:** X-Pando Corp., New York City.

**Features:** Pipe joint compound expands as it seals, and is said to be superior to litharge and glycerine for all jobs in Freon, ammonia, brine and other refrigerant liquids and gases. It is less brittle; ends leaks permanently; corrects thread imperfections; withstands deflection, vibration and extreme temperature changes, and to make pipe joints "as strong as the pipe itself". Packed in 1, 5 and 10 lb. cans and 25, 50 and 100 lb. drums. Cauxal is a permanently-pliable product, applied like putty, that seals ducts, conduits, air conditioning units and other applications where a sealer is required. Needs no special preparation and is vermin-proof, fume-proof, watertight and acid-resistant. Unused material can be put back in can and re-used. Packed in 1 lb., 5 lb. and 50 lb. containers. Complete information available from manufacturer.

Circle No. 143 on Reader Service Card

#### Short-Order Assembly

**Product:** Combination units for short-order food service applications.

**Manufacturer:** Stanley Knight Corp., Chicago.

**Features:** Complete short-order

WHEN YOU MUST HAVE

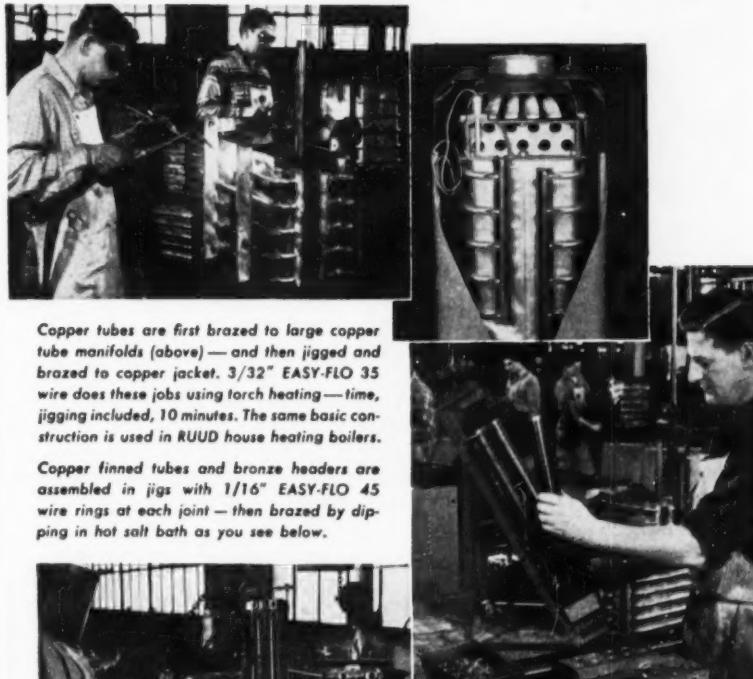
Strong  
Leak-tight  
Ductile

JOINTS

...brazing with EASY-FLO

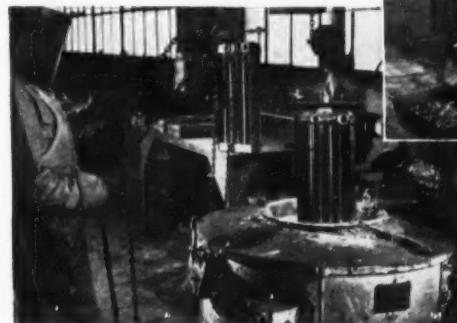


- This low-temperature silver brazing alloy just naturally and consistently makes joints that have all three of these properties—and does it fast and at surprisingly low-cost. That's why you'll find so many manufacturers in the heating, air conditioning and refrigerating industries brazing with EASY-FLO. The well-known RUUD water heater is a typical example. Here's the *inside* story.



Copper tubes are first brazed to large copper tube manifolds (above)—and then jiggled and brazed to copper jacket. 3/32" EASY-FLO 35 wire does these jobs using torch heating—time, jiggling included, 10 minutes. The same basic construction is used in RUUD house heating boilers.

Copper finned tubes and bronze headers are assembled in jigs with 1/16" EASY-FLO 45 wire rings at each joint—then brazed by dipping in hot salt bath as you see below.



#### AT YOUR CALL

Expert aid in applying EASY-FLO brazing to your metal joining. No obligation. Ask for a Field Engineer.



#### GET THE WHOLE EASY-FLO BRAZING STORY

BULLETIN 20 tells you in detail what EASY-FLO is, what it does, and how to put it to work—plus valuable information on joint design and fast brazing production methods. Write for a copy today.



**HANDY & HARMAN**

General Offices: 82 Fulton St., New York 38, N. Y.

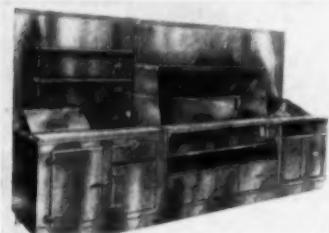
DISTRIBUTORS IN PRINCIPAL CITIES

Circle No. 51 on Reader Service Card for more information

and AIR CONDITIONING • JANUARY, 1953

OFFICES and PLANTS  
BRIDGEPORT, CONN.  
PROVIDENCE, R. I.  
CHICAGO, ILL.  
CLEVELAND, OHIO  
DETROIT, MICH.  
LOS ANGELES, CAL.  
TORONTO, CANADA  
MONTREAL, CANADA

preparation unit possible in 11'6" combination. 3'10" refrigerated short-



order unit provides sandwich preparation with cold pans for storage of sandwich ingredients, large refriger-

ated storage area, space for toaster and/or other appliances, and refrigerated meat drawer located next to equipment stand. 5' equipment stand designed for grills, open burners and french fryer. 2'8" hot food unit available for gas or electricity in either water pan or dry type heat. Full 31½" depth matches fountain widths; fitting strips between units eliminates cracks and crevices.

Circle No. 144 on Reader Service Card

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

**These troublemakers  
are as harmful  
as Moisture!**

**Get rid of  
them ALL  
with the *New***  
**PERMACLEAN  
HEAVY DUTY FILTERS**

**S**TUDIES show that excessive wear, clogging, slowdowns and shutdowns are often caused by sludge, rust, chips, particles, flux, carbon or other impurities. Effective filtering has become as important as drying . . . and McIntire has the answer in the new DFN "Permaclean" Filters.

"Permaclean" Filters have high capacity for running-in new jobs, cleaning up established units and for permanent installation to insure against future troubles.

Protect every system with the DFN clean-up twins . . . "Permaclean" Filters for foreign matter, D-C Driers for moisture. Available at your wholesaler, in factory-sealed and cartridge types.

**McINTIRE COMPANY, INC., 257 Jefferson St., Newark 5, N. J.**



Circle No. 52 on Reader Service Card for more information

#### Degreasing Solvent

**Product:** A new degreasing solvent that can be used with comparative safety.

**Manufacturer:** Virginia Smelting Co., West Norfolk, Va.

**Features:** Sold under trade name "Virginia #10", it is said to be seven to 10 times less toxic than certain other commonly used solvents. Is also said to be non corrosive, not to cause rusting of machined metal parts, and to have very low flammability hazard. Made expressly for refrigeration, electrical and automotive trades, Virginia #10 is a mixture of materials which have excellent properties for removing oil, grease, and grease-bound dirt. Having minimum dielectric strength of 20,000 volts, it is non-injurious to electrical insulation coatings and leaves no current-conducting residues. Packed only in 1-gallon, factory-filled cans.

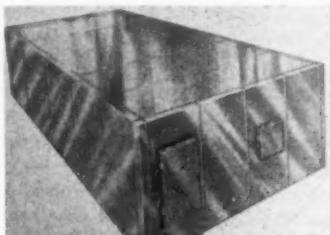
Circle No. 145 on Reader Service Card

#### Walk-In Cooler-Freezer

**Product:** Prefabricated walk-in coolers and freezers with overlap design of modular panels.

**Manufacturer:** Reco Products Div., Refrigeration Engineering Corp., Philadelphia.

**Features:** Overlap design is said to insure tight joints, perfect register,



and to permit tolerances between panels in walk-in cooler and freezer construction. Models available with steel sheathing and with laminated sheathing consisting of plywood to which aluminum has been bonded to form vaporproof interior and exterior. This "Metalply" material requires no maintenance, it is said, and has high heat reflection qualities. Coolers and freezers are built of modular panels which fasten together from inside of enclosure without use of hand holds or lag bolts. Available in wide range of sizes with unsupported spans of up to 20 feet and larger spans through use of Lally Columns and "I" beams.

Circle No. 146 on Reader Service Card

# about **PEOPLE**

**James F. Donnelly** president of the Gas Appliance Mfrs. Assoc., has been named vice

president in charge of sales for Servel, Inc. The appointment fills a vacancy caused earlier this year when John K. Knighton resigned to become president

of Knighton-Keune Co., Servel distributor in Miami. Donnelly comes to the firm after eight years with the A. O. Smith Corp., first serving as sales manager and marketing director for its water heater division, and most recently as assistant general manager of that division.



Federal Refrigerator Mfg. Co. has appointed **C. L. Buckingham** a member of the general staff of Federal with headquarters at Waukesha, Wis.

In his new position Buckingham will work with the firm's distributors and also with national food chain accounts in an engineering as well as a sales capacity. In recent years he was with Hussmann.



**Henry A. Phillips**, associated with La Crosse Cooler Co. since 1947, died recently as a result of injuries suffered in an automobile accident. Phillips started with La Crosse as a midwestern sales representative. He moved to Denver, Colo., in 1950 where he established headquarters. Until his death he operated as a

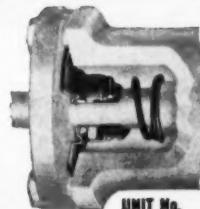
manufacturer's agent handling the firm's products in the Rocky Mountain and adjacent states.

**Neil J. Collins** has been appointed Kelvinator Div.'s commercial products representative for the southeastern U. S. Collins, who has been commercial and parts sales manager for the firm's Minneapolis zone office since 1945, will operate out of factory headquarters in Detroit in his new assignment. A veteran of



## ROTARY *Replacement* SEAL Units

AVAILABLE FOR  
MORE THAN  
**900**  
COMPRESSOR MODELS



- ✓ Easy to Install
- ✓ Simple in Construction
- ✓ Efficient in Operation
- ✓ Economical

The original precision-built replacements for Commercial, Semi-Commercial, Air Conditioning and Home Refrigerator Compressors... Proven by outstanding performance for over 20 years! Units are available for all standard makes.

AT ALL  
LEADING  
JOBBERS

"Seal with



*Certainty!*

**2020 NORTH LARRABEE STREET  
CHICAGO 14, ILLINOIS, U.S.A.**

CANADIAN AGENT: 2025 ADDINGTON AVENUE  
MONTREAL 28, QUEBEC, CANADA

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nearly 30 years in the refrigeration business, he has held positions in factory and field sales, service, installation and testing for the Delco, Frigidaire and Brunswick-Balke-Collender organizations.

Sherer-Gillett has announced two appointments in its sales force. **Harold T. Asmussen** has been named sales manager in the states of Washington and Oregon, together with parts of Montana and Idaho. **Don E.**

**Stevens** has been appointed upper Midwest sales manager covering the states of Montana and Wisconsin. Asmussen has for the past thirteen



H. T. Asmussen

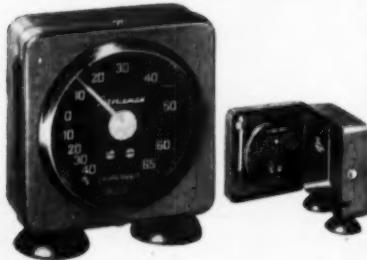


D. E. Stevens

years worked in the commercial refrigeration field, serving as salesman, store layout engineer, branch and sales manager, and divisional sales manager. He will make his headquarters in Seattle, Wash. For the past three years Stevens has been general sales manager for Nor-Lake, Inc. in the commercial refrigeration field. His headquarters will be in Hudson, Wis.

## Know the "Serviceman" line of testing equipment

### 1 The "Serviceman" Testing Thermometers



Here is the handsome new model of the Marsh "Serviceman"—the instrument that for many years has been recognized as the handiest and best testing thermometer. Simply pull out the five foot length of tubing from the back of the case (see cut), then run the bulb to point of measurement. Readings are made as they should be: with door closed.

The single scale type illustrated is available in ranges of  $-10^{\circ}$  to  $+100^{\circ}$  F. and  $-40^{\circ}$  to  $+650^{\circ}$  F., adequate for any cold box testing. Deluxe model in same temperature ranges has two added scales showing corresponding pressures of Freon—12 and Freon—22. The Marsh Recalibrator, easily accessible in back of reel, enables you to keep this instrument accurate at all times.

And don't overlook that handy little pocket thermometer, opposite... highly accurate; easy to read; furnished with swivel clip to hang it in refrigerator or clip it in your pocket.



### 2 The "Serviceman" Testing Gauges



Testing gauge set

Something new, something far better... that is the story of these extremely accurate testing gauges. They are dressed in handsome polished brass cases with glass crystal and knurled screwed ring which gives quick access to the "Recalibrator" to keep them always accurate. Retard scale on 30" x 200 lb. compound gauge gives close reading in important testing range. Both the compound and the 0-300 lb. pressure gauge have knife edge pointers for use on manifolds and other testing operations. Note also the four-scale corresponding temperature gauge, opposite, with three extra color-differentiated scales covering sulphur dioxide, methyl chloride and Freon. Made in ranges for all requirements. All testing gauges have  $2\frac{1}{2}$  dials.



4-scale testing gauge  
See your jobber about Marsh Testing Instruments, or write for facts.



O. L. Rose



H. P. Hansen

forces. **Orion L. Rose** has been named vice president and general manager, **George E. Frankel** has been appointed controller, **Harold P. Hansen** has been appointed general



R. J. Hermann

sales manager, and **Rudolph J. Hermann** has been named assistant sales manager. Rose, with the company 15 years, began as office manager and was later promoted to secretary and treasurer. Frankel came to the firm from Bansley & Kiener, certified public accountants. Hansen joined the firm in 1940 and most recently managed the company's Canadian subsidiary in Brantford, Ont. His post there will be filled by John E. Hutchinson. Hansen succeeds as sales manager L. E. Smith, who will be in charge of all sales in the Chicago area. Hermann has been with the organization for 10 years.

**MARSH INSTRUMENT CO.** Sales affiliate of Jas. P. Marsh Corp., Dept. P, Skokie, Ill.

**MARSH** *Refrigeration Instruments*

Circle No. 54 on Reader Service Card for more information

**Herbert Stevenson**, in the refrigeration field for more than 35 years, died recently of a heart attack. He was 69 years old. For the past few

years he represented Tenney Engineering, Inc. on special accounts and was manufacturer's agent for several other firms.

**E. H. Martin, Jr.**, has been appointed manager of Foamglas low temperature insulation sales for Pittsburgh Corning Corp. Martin will direct all phases of sales for use in low temperature installations. He has been associated with the firm

since 1949 as assistant manager, industrial insulation sales and as manager of building insulation sales.



Chase Brass & Copper Co., Inc. has announced two appointments in its sales force.

**Charles W. Baker**, formerly Milwaukee district manager for Chase, has been appointed western regional sales manager with headquarters in Los Angeles.

Stepping into Baker's former position is **Charles A. Festge**. Baker will supervise Chase sales operations in eleven western states. He joined the sales staff of the firm in Chicago in 1927, and opened the sales office and warehouse in Milwaukee in 1929. Festge will be in charge of sales in most of Wisconsin, the northern peninsula of Michigan and Lake County, Ill. He will also serve as supervisor of Chase warehouse operations in Milwaukee. He has been with the company since 1934.



C. W. Baker

**Willis J. Gray** has been named district sales manager of the Fiber Glass Div. of Libby-Owens-Ford Glass Co., with headquarters in Los Angeles. Gray has been with LOF since 1943 in both industrial and distributor sales divisions in California.

## CAPACITORS...

*Continued from page 35*

By the very nature of their use, electrolytic motor-starting capacitors are expendable to some degree. They just do not last forever; they must eventually be replaced.

Many types of electric-motor-driven equipment are powered by single-phase fractional horsepower alternating current motors. The development and perfection of economical high-capacity electrolytic capacitors has

made possible the practical use of electrically efficient high-starting-torque capacitor motors. Were it not for the capacitor-start method, such motors would have to be much larger, draw a great deal more starting current which would dim the electric lights in the usual circuit, and cost a great deal more money.

The purpose of the capacitor is to produce a current in the starting winding for a magnetic field which, in combination with the main winding, produces a high starting torque. The torque rises rapidly and, after

# STARTS to DRY RIGHT AWAY!



Drying action starts immediately when you use Thawzone. The moisture problem is PERMANENTLY overcome very quickly.

A cartridge drier usually requires a long time to pick up moisture. Only a small part of the refrigerant is in contact with the water-holding material at a given time. Meantime, you cannot tell whether the unit will freeze-up.

But Thawzone travels immediately to the expansion valve, the receiver, the coil, etc. to destroy the moisture. You know the unit will not freeze up. Thawzone is truly a liquid drier . . . a patented product in a class by itself. No other drier has all these features . . .

1. Reaches all parts of the unit.
2. Actually destroys moisture . . . not a mere antifreeze.
3. A patented invention . . . cannot be copied.

4. No pressure drop possible.
5. Not subject to oil clogging.
6. Neutralizes acids, helps prevent corrosion.
7. Helps prevent copperplating.
8. Prevents moisture trouble in new units, too.
9. Costs less. Only about 8¢ per lb. of refrigerant treated.
10. One product for all "Freon" and methyl units.
11. Only  $\frac{1}{6}$  oz. per lb. of refrigerant required.



PREVENTS  
CORROSION  
OF VALVE  
PLATES, ETC.

Left: Exposed 8 months to refrigerant containing .03% water.

Right: Exposed 17 months to refrigerant containing .03% water and 1% Thawzone.

**THAWZONE**  
The Only Product That  
Destroys Water...  
and Reaches All of it

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reaching its maximum value, slowly decreases.

In the vicinity of the maximum value a fairly large change in capacitance produces a relatively small change in torque. This is advantageous, as the relatively wide tolerance in the capacitance of the capacitor keeps the cost of the unit down.

The voltage across the capacitor reaches its maximum torque and then starts to decrease. Since the voltage across the capacitor is determined by the design of the starting winding and the line voltage, the voltage

across the capacitor is a good indication of the proper-sized capacitor.

Standard practice today calls for a maximum capacitor voltage of 138 during the starting period for a 120-volt motor. This voltage lasts for a very short period of time, usually less than one second.

Higher voltages, such as occur with undersized capacitors, will decrease the life of the capacitor markedly. The use of undersized capacitors will not prevent the motor from starting, but will increase the starting time and the voltage across the capacitor.

Since electrolytic motor-starting units are not continuous-duty units, the excessive voltages and starting periods that occur with improper capacitors decreases the life of the unit.

If the capacitor is too small, the torque produced may be insufficient to bring the motor speed up to the point at which the centrifugal switch disconnects the capacitor from the line. Under such conditions the capacitor soon fails by drying out. The starting period should not exceed three seconds in a properly functioning motor.

It should be noted that motor capacitors are made for intermittent duty only, and are usually damaged by the failure of the associated equipment. It is important, therefore, to determine and eliminate the cause of capacitor failure before replacement. In addition, the replacement capacitor should be of proper capacitance and voltage rating. The use of a wrong capacitor will usually result in rapid failure.

#### Check These Points

The serviceman should check the following points before leaving the job:

(a) Measure voltage across capacitor during starting period. It should not exceed 138 volts for 110-120 volt capacitors. For other voltage ratings, it should not exceed either 110% or 125% of the normal rating, whichever applies. If the voltage across the capacitor is higher than the limiting value given, it usually indicates a capacitor of too low capacitance.

(b) Time the duration and frequency of the starting period. These should not exceed the limits given in the guarantee. If the start takes too long, either the capacitance of the unit is incorrect (too high or too low) or the associated equipment is defective. Too frequent starts (over 20 per hour) should not be allowed. Such condition indicates some defect in the control equipment.

(c) Measure the temperature of the capacitor motor compartment. It should not exceed 130 F.

(d) The container of the capacitor should be installed from ground.

Attention to all of these factors will generally result in a satisfactory job.

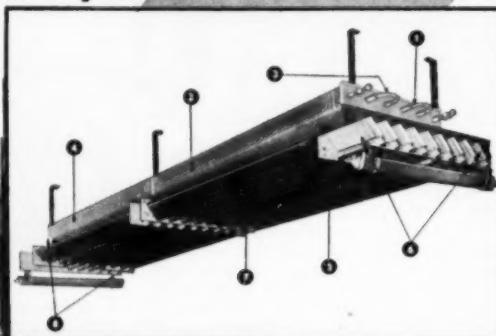
## "some combinations can't be beat!"



### Tenney COIL AND PAN COMBINATIONS

For it takes a combination—a well integrated team of sound engineering and quality craftsmanship—to produce the most efficient and durable Coil and Pan Combinations. That's why, for either standard or special installations, it pays to "take it to TENNEY."

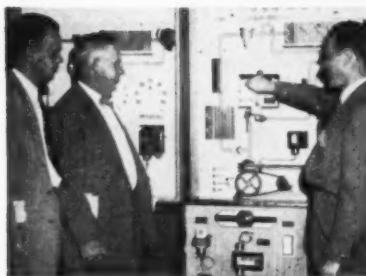
SERVICEMEN  
CONTRACTORS,  
JOBBERS,  
ENGINEERS



1. Copper-welded connections 2. Super-sensitive fins 3. Electro-tin-plated tubing 4. Mechanically molded bond of faceted fin to tube 5. Louvers of heavy aluminum alloy 6. Scientifically placed louvers for improved air circulation 7. Louvers temperature-equalized to prevent dripping 8. Adjustable pull hook hanger for easy installation and cleaning

Coils And Coil & Pan Combinations For 8 ft. Walk-In-Coolers										Coils And Coil & Pan Combinations For 10 ft. Walk-In-Coolers										
SIZE	BTU'S/HR.	DE. FT.	ME.	MODEL	COIL & PAN COMBINATIONS					BTU'S	BTU'S/HR.	DE. FT.	ME.	MODEL	COIL & PAN COMBINATIONS					
					COIL	DE. IN.	BTU'S	IN. X FT.	COIL						COIL	DE. IN.	BTU'S	IN. X FT.	COIL	
3 x 4	3000	10	1	100P	12	20	48	1200	7	21	40	1	100P	12	30	60	1200	7	31	42
3 x 5	3000	10	1	100P	12	27	48	1200	7	24	40	1	100P	12	35	60	1200	7	31	42
3 x 6	3000	10	1	100P	12	33	48	1200	7	27	40	1	100P	12	35	60	1200	7	31	42
3 x 7	3000	10	1	100P	12	39	48	1200	7	30	40	1	100P	12	35	60	1200	7	31	42
3 x 8	3000	10	1	100P	12	45	48	1200	7	33	40	1	100P	12	35	60	1200	7	31	42
3 x 9	3000	10	1	100P	12	51	48	1200	7	36	40	1	100P	12	35	60	1200	7	31	42
3 x 10	3000	10	1	100P	12	57	48	1200	7	39	40	1	100P	12	35	60	1200	7	31	42
3 x 11	3000	10	1	100P	12	63	48	1200	7	42	40	1	100P	12	35	60	1200	7	31	42
3 x 12	3000	10	1	100P	12	69	48	1200	7	45	40	1	100P	12	35	60	1200	7	31	42
3 x 13	3000	10	1	100P	12	75	48	1200	7	48	40	1	100P	12	35	60	1200	7	31	42
3 x 14	3000	10	1	100P	12	81	48	1200	7	51	40	1	100P	12	35	60	1200	7	31	42
3 x 15	3000	10	1	100P	12	87	48	1200	7	54	40	1	100P	12	35	60	1200	7	31	42
3 x 16	3000	10	1	100P	12	93	48	1200	7	57	40	1	100P	12	35	60	1200	7	31	42
3 x 17	3000	10	1	100P	12	99	48	1200	7	60	40	1	100P	12	35	60	1200	7	31	42
3 x 18	3000	10	1	100P	12	105	48	1200	7	63	40	1	100P	12	35	60	1200	7	31	42
3 x 19	3000	10	1	100P	12	111	48	1200	7	66	40	1	100P	12	35	60	1200	7	31	42
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3 x 21	3000	10	1	100P	12	123	48	1200	7	72	40	1	100P	12	35	60	1200	7	31	42
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3 x 24	3000	10	1	100P	12	141	48	1200	7	81	40	1	100P	12	35	60	1200	7	31	42
3 x 25	3000	10	1	100P	12	147	48	1200	7	84	40	1	100P	12	35	60	1200	7	31	42
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3 x 31	3000	10	1	100P	12	183	48	1200	7	102	40	1	100P	12	35	60	1200	7	31	42
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3 x 62	3000	10	1	100																

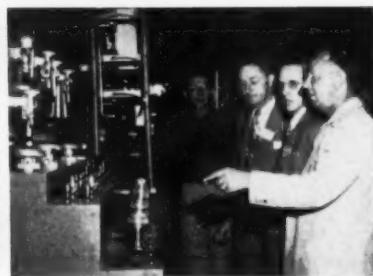
## REFRIGERATION MEN FROM NEAR AND FAR PICK UP POINTERS



LOOKING OVER the exhibits at the Miami Educational Conference, these refrigeration men picked up tips to help them in their everyday work. At left are Gifford Holden and Ralph King, of Fort Walton, Fla., and H. S. King, of



Atlanta. Center: Harry Youmans, Raleigh, N.C.; H. W. Welker, Jr., Hasco, Inc., Greensboro, N.C.; Robert Gennett, Refrigeration Supplies Distributor, Birmingham, Ala.; and R. E. Petersen, Abendale Estates, Ga. Right: R. L. Bonham,



Santa Fe, N.M.; W. Ben Knox, Alco Valve, Atlanta; J. R. Garner, Graves Refrigeration, Atlanta; and Arley Baker, of Alco Valve's home offices.

(Photos by Irving Alter)

### NEW FIRM TO REPRESENT SERVEL IN NEW YORK

Appointment of Air Equipment Distributors, Inc., New York City, to handle Servel air conditioning products in this area was announced by W. Paul Jones, president of Servel. The A.E.D. territory will include the five boroughs of New York City plus Suffolk and Nassau counties on Long Island.

Robert K. Eskew, who has been manager of sales and engineering in the New York metropolitan area for York air conditioning for the past two years, is president of the new firm; B. D. Maseritz is vice president and general sales manager, and William Schwarz is secretary.

#### BUY FROM YOUR REFRIGERATION WHOLESALER

### SERVEL NAMES NEW ARIZONA DISTRIBUTOR

Appointment of Standard Sheet Metal Works of Phoenix as new distributor for Servel air conditioning products in northern Arizona has been announced by Robert M. Kell, Servel's regional air conditioning manager. Peter Henscheid and Floyd Collins are co-owners of the distributing organization.

another RECOLD first

**Do the Refrigeration Coils You Use Have Motor Overload Protectors?**

All "RECOLD" Coils Have This Added Protection

Refrigeration Engineering, Inc.  
7250 E. Slauson Avenue  
Los Angeles 22, Calif.

Circle No. 61 on Reader Service Card  
and AIR CONDITIONING • JANUARY, 1953

**BEVCO**

**QUALITY COOLERS YOU CAN FIT INTO YOUR LINE AND SELL AT A PROFIT**

**ACCESSORIES**

You sell quality, trouble-free cooling in these electric units that operate wet or dry. In 3 sizes...4, 5, 6 ft. Unobstructed interiors. Baked Enamel finish for beauty and sanitation.

SEND FOR CATALOG C-1

**The BEVCO Company, Inc.**  
3316-28 S. BROADWAY • ST. LOUIS 18, MO.

Circle No. 60 on Reader Service Card

**Plastic EXTRUSIONS**

Specialists In Custom Extrusions  
Send Prints For Quotation

Jarene "B" Vinyl Plastic is an exclusive Jarrow compound. It is long lasting, weather resistant, compresses easily and is flexible to almost any degree from soft to semi-hard. Offered in a wide choice of colors.

Our plant is geared for small runs as well as large. All new, modern equipment is operated by skilled plastic craftsmen with many years experience.

Our 25th Year  
Serving The Refrigeration Industry

**JARROW PRODUCTS**  
420 N. LA SALLE ST. CHICAGO 10, ILLINOIS

Circle No. 62 on Reader Service Card

## EDUCATIONAL EXHIBITS GET BIG PLAY AT MIAMI CONFERENCE



**THE CAMERA CATCHES** visitors to the Miami Educational Conference as they pause in their travels up and down the aisles. Right: E. C. Freeman, West Palm Beach; L. L. Melear, Atlanta; J. C.



Server, West Palm Beach; Frank O. Brain, Ace Supplies, Miami; and Charles Benson, Imperial Brass Mfg. Co. Center: John Wiggin, East Bradenton, Fla.; Ken Newcum, of Remco, Inc.; Hugh



Smart, Refrigeration Appliances, Chicago; and Charles Mahdad, Altoona, Pa. Right: C. S. Hughes, Miami; C. W. Killimen, Mobile, Ala.; and W. C. Yocom, Superior Valve. (Photos by Irving Alter)

### "EMANCIPATION HOUSE" IS CARRIER EQUIPPED

"Emancipation House," designed to free homemakers from many slaveries in the home through complete air conditioning, was opened for inspection by the public recently in Short Hills, N. J. as the first of 44 homes in Deerfield Park's completely air conditioned residential community, the first such development in New Jersey.

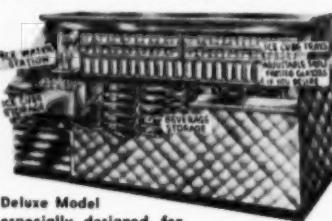
Carrier Corp., manufacturer of the residential Weathermaker air conditioning equipment, terms the home a "distinct advance in making the housewife the actual mistress instead of the servant in her home."

F. H. Mulcahy, Inc., original developers of the Deerfield Park development, is offering the homes in the new community, complete with landscaping, at \$28,000 and up, according to size and location.

### NO AIR CONDITIONERS FOR DEEPFREEZE—YET

Rumors that Deepfreeze will add home air conditioning units to its product line in January were dispelled recently by Ben G. Sanderson, general sales manager. But Sanderson made it plain that the Deepfreeze Appliance Div. will eventually enter the air conditioning market on a broad scale, possibly before the end of 1953 and certainly during the next year.

Another FIRST from the Originators Beautiful Gleaming Stainless Steel **COMBINATION BEVERAGE COOLER and ICECUBE MAKER** with Built-In Water Station!



Deluxe Model especially designed for Night Clubs, Taverns and other Businesses

Model Triple A—Equipped with shelf that can be converted from a drip pan to a Frost Glass Chiller by moving to lower brackets. Built-in Water Station for cold water. Roto Polyethylene Trays make over 150 lbs. of ice cubes and dry cools 2000 12 oz. bottles daily. 3-inch insulation. Remote type or self contained. 4-5-6-7-8 Ft. Sizes, 27" W, 39" H.

Write for Free Illustrated Catalog and Full Information

#### 4-BROS. REFRIGERATION MFG. CO.

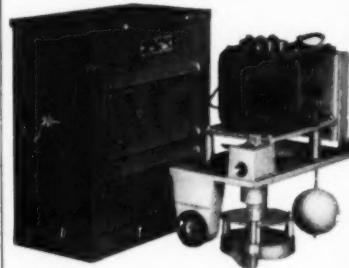
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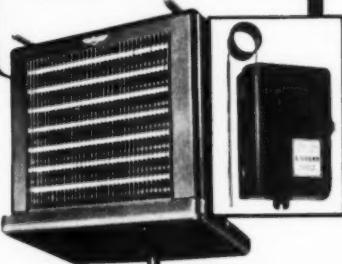
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WATCHDOG OF THE NATION'S FOOD SUPPLY

**LARKIN COILS**

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## HEATING SIDE . . .

*Continued from page 40*

distinct advantages in certain situations.

The air conditioning contractor should realize that it is not always possible to obtain enough panel surface in the floor of a building to develop sufficient output to meet the existing load. In a situation of this kind auxiliary heat sources must be supplied.

An excellent case in point is a large automobile dealership in which the service area is 1½ stories high and has tremendous glass areas to provide plenty of light. In this case the air conditioning contractor found that coils in the floor would not develop sufficient heat for the room. To augment the radiant heating system, several large fan-coil type hot water heaters were suspended from the ceiling, and supplied with water from the central boiler and pumping system. Controlled by individual thermostats operating the fans, these heaters are only called into service during severe winter weather.

## YOGURT COOLING . . .

*Continued from page 42*

essing chamber to detect any outside bacteria that might affect the fermentation of the yogurt.

Latest developments in refrigeration and air conditioning have been consistently used by Dannon as a result of the constant research program maintained to improve production, packaging, and distribution procedures.

For instance, Dannon's production process was materially affected following research which was undertaken with the aim of switching from glass to paper containers. This change was desirable because rising costs of refrigerated transportation made it uneconomical to pay for the extra weight of the glass containers.

The change in containers confronted Dannon with a difficult technical problem in its production process. Since yogurt is kept refrigerated, the best paper containers were of the waxed-finish type. Before they could be used, however, a way had to be devised to lower the temperature of

the unfermented milk before it was poured into the containers.

This finally was accomplished after two years of diligent research, and the resultant change reduced the company's freight costs by 75% on out-of-town shipments.



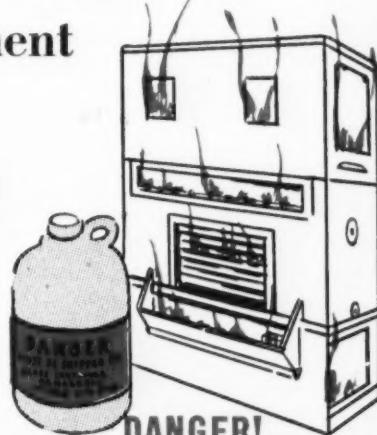
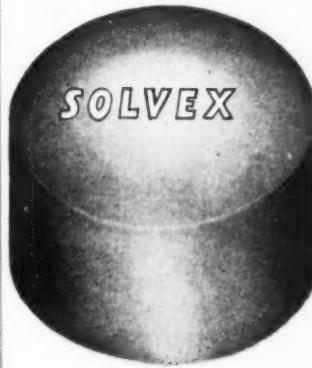
## NAVAJO AGENTS EXPAND COVERAGE FOR ALLIN

In the interest of closer contact with refrigeration wholesalers in the Kansas and western Missouri regions, Albert Wittlin, president of Allin Mfg. Co., has announced that the territory of Navajo Agents has been expanded to cover these states in addition to the states of Nevada, Utah, New Mexico, Colorado and Nebraska.

J. R. Marshall, head of the manufacturers' representative firm, claims his company now covers Allin's largest territory.

# WHY DESTROY Expensive Equipment by using Destructive Substances?

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# CONTRACTORS

NEWS • ACTIVITIES • PLANS

## George Howe New RACCA President; Headquarters Moved Back to Chicago

GEORGE T. Howe, Accurate Electric Refrigeration Service, Inc., Chicago, was elected president of Refrigeration and Air Conditioning Contractors Association at RACCA's 7th annual convention Dec. 3-5 in the Casablanca Hotel, Miami Beach, Fla.

A. M. Palen, Palen Refrigeration Service, St. Paul, was reelected first vice president; Ralph W. Lampie, Lampie Refrigeration Service, Richmond, was reelected second vice president; Dudley M. Cawthon, Dudley M. Cawthon Co., Miami, is the new recording secretary; and Ralph Manns, Ralph E. Manns Co., Wilmington, Calif., was elected treasurer. B. C. McCall, of Lilie & McCall, Inc., Chattanooga, Tenn., continues as sergeant-at-arms of the association.

Retiring president Ted A. Reina, of M & R Refrigeration Corp., Brooklyn, will continue on the RACCA board.

### Directors Listed

Directors, in addition to the officers, are: A. G. Dienstel, A. G. Dienstel Co., Bridgeport, Ohio; Harvey O. Miller, Murphy & Miller, Chicago; R. W. Noll, Commercial Refrigeration Co., Los Angeles, G. T. Rostock, Articaire Refrigeration Co., Kansas City; William Schemers, Schemers Refrigeration Service, Detroit; and E. W. Farr, Jr., Bell Refrigeration Corp., Cleveland.

It was announced at the meeting that the RACCA executive offices will be moved back to Chicago, where they will be located at 228 N. LaSalle St.

Annual business meeting of RACCA, including reports of all committees, was held on Dec. 5.

Talks presented at the RACCA sessions included "Window Treatment and Air Conditioning Loads", by F. S. Dammers, Hunter Douglas Corp.; "Small Pipe Air Conditioning—Summer and Winter", by Jack Kice, Coleman Co., Inc.; "Trend Toward Open Meat Cases," by Harry N. Corbin, C. V. Hill & Co.; "Progress and Future of Frozen Foods," by Donald M. Lins, Tropical Fruit Growers Assn.; "Heating and Air Conditioning," Ralph Lee, the Trane Co.; "Large Horsepower Air Cooled Condensers", by S. Charles Segal, Kramer Trenton Co.; "Our Individual Debt," by W. L. Long, Chicago Conditionaire Co.

At a special session on business administration and sales training, held jointly with REMA and RSES, speak-

ers included R. S. Lafferty, Hill-York Corp., on "Is a Profit Justified?"; Gregory P. Marburgh, Electrolux Corp., on "Sales Training Techniques"; and Ernest L. Foss, Pan American Airways on "Advertising".

Digests of most of these talks will be reprinted on these pages in forthcoming issues.

### SUPPLY HOUSES AGREE TO BID ON EQUIPMENT ONLY

Two California hotel and institutional supply houses have recently given the Refrigeration and Air Conditioning Contractors Association of Southern California, Inc. written assurance that they will no longer bid directly for refrigeration contracting work but will only bid for the equipment. Henry B. Ely, executive secretary of the association, reports.

The two houses are the Dohrmann Hotel Supply Co. and the Coast Distributing Co.

A letter from Dohrmann's attorney to the association stated:

"To the end that the company's (Dohrmann) representatives do not in the future undertake any installations which would properly require a refrigeration contractor's license, all units are being instructed not to bid upon or contract for the installation of any refrigeration equipment which is to become an integral part of any building."

"It will be the policy of the com-

### They'll Lead Contractors for Next Year



GUIDING CONTRACTOR ACTIVITIES during the coming year will be these officers and directors of the Refrigeration and Air Conditioning Contractors Association, elected at the organization's 7th annual convention last month in Miami Beach, Fla. Front row: Ralph W. Lampie, second vice president; Cecil E. Kirby, retiring director; Miss Edna Berggren, RACCA headquarters staff; George T. Howe, president; Ted A. Reina, immediate past president; R. W. Noll, director. Back row: Ralph E. Manns, treasurer; William Schemers, director; Harvey O. Miller, director; A. G. Dienstel, director; B. C. McCall, sergeant-at-arms; G. T. Rostock, recording secretary; and Ernest W. Farr, Jr., director.

pany where such installations are called for, to bid only upon the equipment and not upon the installation, leaving the matter of such installation to direct bid and contract by some licensed refrigeration contractor."

This letter was in reply to one from Ely pointing out that in his opinion, bidding for installations of refrigeration equipment is contrary to the state contractor's license law even though the labor is subsequently let to a licensed contractor.

Ely told association members that he felt sure these companies would want to be advised "of any instances where any of their representatives bid both labor and equipment for refrigeration work."

He asserted that association policy was that refrigeration contracts should be let as a whole and not separated into labor and equipment because only where you have one person responsible for the entire job is the owner properly assured of a workmanlike installation and the necessary service.

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REFRIGERATION WHOLESALER**

## RACCA Brief Cites Advantages In Separate Cooling Contracts

RACCA's reasons for believing that refrigeration and air conditioning equipment should be handled as a completely separate category by architects in drawing up plans and asking for bids were recently presented to the American Institute of Architects by RACCA's executive office.

This is a continuation of our presentation of the RACCA position, the first part of which appeared in these pages last month.

\* \* \*

We maintain that separating refrigeration and air conditioning from the main contract would be a greater advantage. As quoted again in Chapter 26, as follows: "If there be, as in many cases there is, a substantial advantage to the Owner in letting a few of the more important branches of the work separately from the main contract, it is pertinent to inquire whether a

further advantage is not to be gained by carrying this separation to all important branches.

"That this question is frequently answered in the affirmative is shown by the fact that much work is executed in that way by architects of the highest standing and for owners alert to every advantage. The method is known as the "Separate Contract System", or by others as "The System of Segregated Contracts." It consists in substituting for a single contract with a General Contractor many contracts with master mechanics of the several trades, and in substituting for the management of a General Contractor that of the Architect.

"By this method the specifications and drawings are so prepared that estimates on each part of the work may be separately obtained from a carefully selected list of bidders. This method ensures a capable Contractor for each part of the work, whereas that of competition on the work as a whole tends, as explained in Chapter 24, to beat down its quality by reason of each bidder being anxious to secure the lowest possible bids from Sub-Contractors, to that

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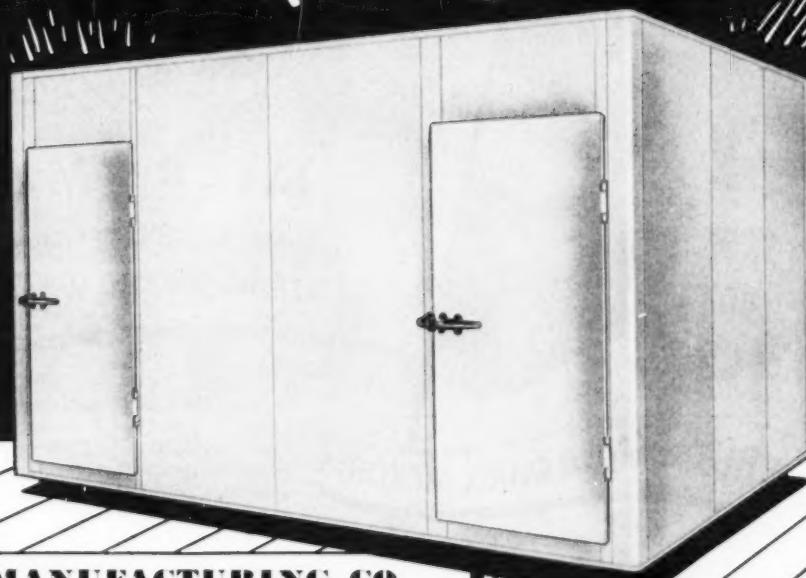
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end often inviting incompetent mechanics to bid."

We maintain that if refrigeration and air conditioning were considered in a separate category that there would be better quality at a more reasonable price. The use of general contractors using sub-contractors and then sub-sub-contractors would result in competitive bidding whose main objective would be a cheap price rather than a quality job.

#### Means Better Quality

It is well stated in Chapter 24 of the Handbook of Architectural Practice, Page 48, as follows: "As each (General) Contractor's aim in competitive bidding is to secure the work for himself, and as there is ordinarily no chance of this unless his bid is the lowest, he naturally applies his whole mind to keeping the price down. Now this may be legitimate enough as applied to the work that he is to do with his own force, but if he is to be a General Contractor he has ordinarily to employ a score or more of Sub-contractors. His proposal depends far more on the bids that he gets from them than on the value he puts on his own work."

"To get the lowest sub-bids he must invite a host of Sub-contractors to bid to him and, unless he is a man of strong character, he does not inquire too closely as to the honesty or competency of the lowest bidders, for if he does, the work will go to someone who has not done so. Now, unless the greatest care has been taken to include in the invitation none but bidders

of the highest character, the lowest bid is likely to come from a Contractor who has made it by adding to the cost of his own work all the lowest sub-bids he could get and then perhaps knocking off something in the hope that a lucky chance will leave him a profit.

"If he gets the contract he does not close with the men whose bids have enabled him to win the work, perhaps a poor enough lot, but he employs every art further to depress their bids or he seeks out other Sub-Contractors at still lower figures. It needs little imagination to picture the result of such a course on the quality of the work; and the course is not an unusual one."

#### They're Just Brokers

*"Such Contractors are mere brokers of other men's services. Their interest is not in the integrity of the work. They do not long keep up even an appearance of directing it, for as soon as trouble comes they throw onto the Architect the burden of the fight with incompetent sub-contractors. Such results of competitive bidding are as repugnant to honest and capable builders as to architects."*

Objection may be raised by some architects that the division of the categories are too many right now and no more should be added. RACCA maintains that such a division is absolutely essential even though it may cause the architect to draw up sets of additional plans.

The additional cost of making such plans would be negligible because of the tre-

mendous saving of time and money and the end result would be greater satisfaction. Refrigeration and air conditioning plans can be made relatively simple. Such plans will not be combined with other installations. Combination plans make more complicated drawings—these plans will be very clearly defined. A Contractor using these plans will do so readily since they will be easy to read and to follow.

#### Would Simplify Plans

If the installation will be more easily understood by this method many complications will be avoided, many law suits will die aborning, proper temperatures will be maintained, there will be no spoiled food because of improper humidity or temperature, clients will be satisfied. After all is said and done if the job is not satisfactory, the onus will rest squarely upon the architect.

Air conditioning or refrigeration is not simply the placing of a compressor unit in one place and a blower or coil in another. It is a combination of many sciences. Recently the Georgia Institute of Technology with reference to the function of walls stated:

"Modern technology, mainly by way of steel columns and reinforced concrete, has done away with much of the supporting function of the walls, freeing the way for the architect to use large glass panels. These new methods of design, however, have created major new problems, mostly related to excessive solar radiation, a pri-



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mary concern to this group.

The importance of the effects of direct and reflected solar radiation through transparent windows on the space cooling load has been early recognized as a major problem by the Air Conditioning Industry. The necessity of making a reasonable estimate of the magnitude of this part of the cooling load has lead the Societies to take part in extensive studies of the problem.

The first results of this work was published about 1932-34, with investigations still in progress. As a result, we are now able to predict with an accuracy well within 10% the heat which will enter by way of ordinary glass windows, with and without shading. Studies have shown that ordinary window glass absorbs as much as 16.7% of the radiant heat striking its perpendicularly, while all unabsorbed radiation is either transmitted or reflected.

#### Solar Radiation

Preventing solar radiation from adding to the cooling load by means of the most efficient window treatment is a point of great interest, and research on different types of window shading has been carried out on behalf of this Industry."

The needs of different kinds of cooling in the same building are most apparent when examining the recent construction of a store and apartment house building, rather large in size.

The store level consisted of a large supermarket in which the general area was air conditioned by blowers and on the same level there were different purpose cooling rooms. There was a meat cooler room, produce cooler, dairy cooler and low-freeze.

Persons without proper and full knowledge of air conditioning and refrigeration at first blush might think that all of this cooling would be best handled by one single compressor unit, but to a refrigeration and air conditioning contractor they are separate and individual problems and must be handled as such.

#### Each Problem Different

The air conditioning would have to produce about 50% humidity at 70% outside humidity and about 15° differential in temperature at 95° outside temperature. The dairy cooler should be between 35°-40° with a relative high humidity for other than canned or bottled goods. The produce cooler should be 32°-36° with high humidity but not as high as the dairy cooler. Frozen fruits and vegetables should be stored in the low freeze at 0° or lower but with a relatively high humidity similar to storage of fresh fruits and vegetables. The meat cooler should be 32°-36° with same humidity as fruits and vegetables. (Refrigeration Data Book—American Society of Refrigeration Engineers, Chapter 40, page 49).

Because of the very nature of refrigeration and air conditioning, because of the very highly complicated work, because of the very technical safety code which every refrigeration and air conditioning contractor must use, the necessity for such separate category is evident.

Since the refrigeration and air conditioning industry is a comparatively new one, it has suffered from growing pains, but it

has finally grown up and today is one of the Nation's largest and one of the Nation's most important industries. Extra costs could be eliminated from new construction work by a revision of the method of writing specifications and the method of accepting bids in the "Code of Bidding Procedures".

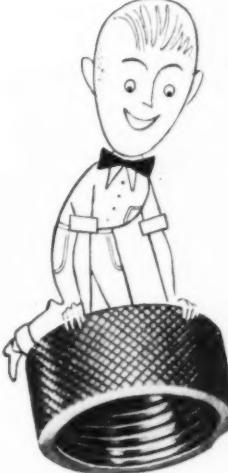
In this way it will allow the refrigeration and air conditioning contractor an opportunity to submit his bid either direct to the general contractor or to the owner if he is handling contracts directly. If this is done, it is our firm belief that the consumer, the architect, the refrigeration and air conditioning contractor will benefit tremendously because of the increased efficiency and the use of the know-how of the refriger-

ation and air conditioning contractor and more important because of the greater benefit in time, efficiency and money to the owner, the goal of all parties concerned.

Therefore, the "Code of Bidding Procedure", "The Handbook", and all publications and documents of the American Institute of Architects should be changed to include Refrigeration and Air Conditioning as a separate category.

#### SEEK CHANGE IN CALIF. APPRENTICE PRACTICES

The Refrigeration and Air Conditioning Joint Apprenticeship Committee has passed a resolution sug-



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## PRODUCE RIPENING . . .

Continued from page 33

face. The use of separate compressors permits use of all 10 rooms simultaneously.

Overhead air chambers are built into long banana rooms to permit conditioning units to get a good air "throw" and assure adequate air circulation in the rooms.

Each holding room has two Bush unit coolers of similar size on a 7½-hp Brunner compressor, making a total of 24 unit coolers and 22 condensing units in the installation.

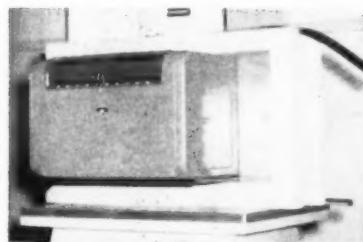
Two 50-ton cooling towers on the roof handle the condensing water, and control is by thermostat with manual setting of temperatures and use of heating or refrigeration as required.

Thanks to foresighted design, the Smilens plant permits efficient handling of the fruit. Doors of the ripening rooms open directly onto a covered loading platform, and control of humidity, heating and cooling provides flexibility which enables the concern to correlate ripening and handling of their fruit with existing market conditions. Result: a better product on the market at a better time.

## ROOM COOLER FRAMES . . .

Continued from page 33

have found these pre-cast frames so easy to handle that they are buying them and inserting them in old buildings where it has been necessary to cut a hole in the wall to make the installation. The frames provide a ready-made receptacle from which the air conditioner can be easily removed for repair or replacement.



This display in the showroom of a Miami air conditioning dealer shows how the conditioning units are attached to the pre-cast frames.

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# THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

## APPLICATIONS MANUAL

by William M. Brewer

Beginning with this issue, the Applications Manual will be written by William M. Brewer, vice president in charge of engineering, Refrigeration Sales Corp., Cleveland. Brewer, a registered professional engineer in the state of Ohio, will draw on his own personal experience in describing typical application problems encountered in the contracting field, and in answering questions sent in by our readers. We invite readers to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

### PROBLEM

THE great trend toward the use of package units for air conditioning is largely due to their flexibility, ease of installation, and low initial cost.

Until recently, the use of package units has been confined pretty much to comfort cooling applications. However, with industry becoming more aware of the need for controlled conditions for many manufacturing processes, various adaptations of package units for separate humidity and temperature control have been devised without appreciably increasing the installation and operating cost.

As an example, we recently made an installation in a lithography shop that for years had been controlling humidity during the winter with a number of water atomizing humidifiers suspended from the ceiling. During the summer months they had no control of either temperature or humidity and as a result, there was a definite decrease in both the quantity and quality of work produced.

This company, therefore, was very interested in controlling temperature and humidity during all seasons, if the initial installation and operating ex-

penses were not excessive. Conditions to be held were not too critical as long as temperature and humidity could be fairly constant the year around. Therefore 78 F dry bulb and 45% relative humidity were selected as design conditions.

### SOLUTION

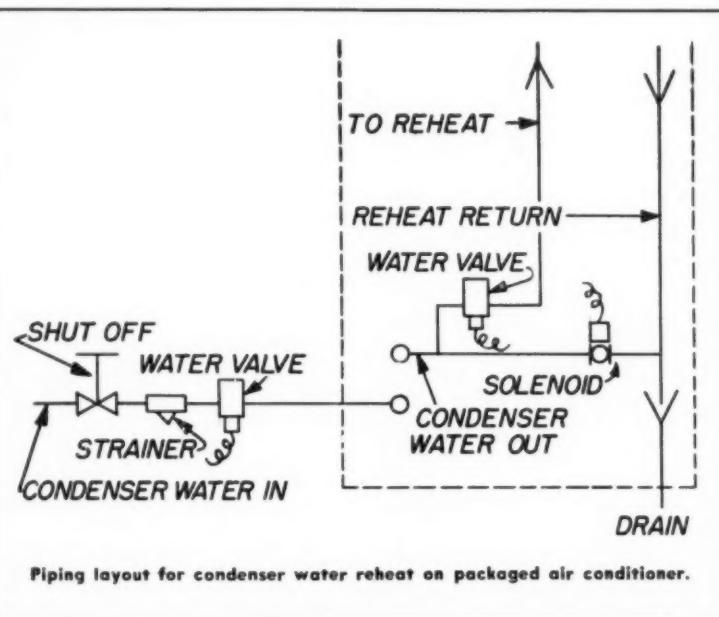
After determining that a cooling capacity of 28 tons would be required, the first problem was to determine the type of air conditioning system to use. Water and drain to all areas of the one floor shop was easily obtainable and small equipment locations around the outside walls were available, so this obviously was an ideal application for package units.

Of course, to obtain humidity control separate from temperature control, re-heating of the cooled, dehumidified air is required. Steam or hot water was not available during summer months. Electric strip heaters could have been used, but the expense of heaters, contactors and extra heavy wiring to five package units, plus the high operating cost of electric heating, did not look desirable.

It was decided, therefore to use condenser water for re-heating. This provided an ever present source of heat at no extra cost to the owner.

There are numerous ways of providing and controlling condenser water reheat, but for this job we used one of the simplest and most economical ways. This method, developed by Carrier Corp., uses nothing but the following readily available standard components in addition to the standard package air conditioner with built-in cooling thermostat:

one line voltage humidistat;  
one line voltage double pole, double throw relay;  
one line voltage solenoid water valve;



Piping layout for condenser water reheat on packaged air conditioner.



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Chicago 22, Illinois, U.S.A.

and one package unit heating coil.

The piping was arranged so that the condenser water enters through the unit water valve and then goes into the condenser. This water valve was selected to maintain a condensing temperature of 100 F or less during peak load operation. The water solenoid valve is installed in the condenser outlet water line to the drain.

During the cooling cycle, the hot condenser water passes through the open water solenoid valve into the drain. From a tee in the condenser outlet water line ahead of the water solenoid valve, a line runs to the reheat coil. In this line is the other water regulating valve. This valve will prevent the condenser water from flowing through the reheat coil. This valve also was selected for 110 F condensing temperature.

### Operating Sequence Described

The sequence of operation of this system is as follows:

- A. When the unit selector switch is placed on cool, the compressor motor is placed under the control of the thermostat and humidistat.
- B. If the thermostat calls for cooling, the double pole, double throw relay is energized, supplying power to the compressor motor starter holding coil. Power is also supplied to the water solenoid valve, keeping that valve open.
- C. When the thermostat is satisfied, the relay is de-energized and the compressor shuts off. The water solenoid valve is also de-energized and closes.
- D. If the humidity is higher than the setting of the humidistat, the contact will be closed, supplying power to the compressor motor starter holding coil. The water solenoid valve remains closed. Therefore, the condensing pressure increases until the water regulating valve to the reheat coil opens and allows the condenser water to circulate through the reheat coil to the drain.
- E. If the thermostat calls for cooling when the humidistat is keeping the compressor running with reheat, the relay will be energized which keeps the compressor running but opens the solenoid water valve which shuts off the reheat by diverting the condenser water directly to the drain.

When this system was installed in the lithography shop it was found to control the temperature and humidity very accurately and the cost of the complete installation was less than \$500 per ton, which was a very important advantage in selling this specific application.

### CARRIER OPENS EXPANDED OFFICES IN ST. LOUIS

New and expanded office facilities in the St. Louis area have been opened at 3807 Washington Ave. by Carrier Corp. The 2,500 sq. ft. modern brick colonial building will house both direct and dealer sales branch offices of Carrier, plus warehouse facilities.

A. G. Hillen is branch manager for Carrier's direct sales division, and George Robinson is dealer division branch manager.

The office provides sales, engineering and installation service for an area which includes all of Missouri and Kansas and portions of Iowa, Nebraska, Illinois, Indiana, Kentucky, Tennessee, Mississippi and Alabama.

Present for the formal opening of the new offices were Charles V. Fenn, manager of Carrier's direct sales division; D. B. Arnold, regional manager of Dealer sales; William S. Bodinus, district manager of direct sales, and L. M. Ross, district manager of dealer sales.

### CULLEY CO. REPRESENTS USAIRCO IN KENTUCKY

H. E. Culley & Co., Louisville, Ky., has been named manufacturer's representative by the United States Air Conditioning Corp.

The new representative will handle the entire line of USAirCo air conditioning, heating and ventilating equipment in the territory comprising Kentucky, southern Illinois and southern Indiana. Assisting Culley are M. C. Puckett and M. M. Whorley.

### RECOLD EQUIPMENT TO BE MADE IN DENMARK

A licensing agreement under which Recold equipment will be manufactured in Denmark has been granted to A/S Atlas Maskinfabrik of Copenhagen by Refrigeration Engineering, Inc.

Negotiations for the agreement were brought about by Albert Rebel, in charge of Recold's export division. A/S Atlas is said to be one of the largest manufacturers of industrial and commercial refrigeration equipment in Europe and maintains offices in several European countries as well as in Argentina and Brazil. S. A. Mandst, managing director of A/S Atlas, handled negotiations for that company.

# What the serviceman should know about "VIRGINIA" REFRIGERATION products

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and AIR CONDITIONING • JANUARY, 1953

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# HERE'S HOW!

## When Does a Coil Need Flushing?

Every serviceman knows that the oil and sludge which collects in a refrigeration system can cause a lot of grief. For this reason it is important to occasionally flush out the system with some sort of a suitable solvent.

But just when does a coil really need flushing? Here are some recommendations from Ansul Chemical Co.'s technical department:

1. Whenever a compressor unit must be replaced because of wear or motor burn out. Worn bearings, cylinder walls, pistons or burned windings mean that foreign material has

been pumped into the system and will eventually return to the new compressor and probably damage it also.

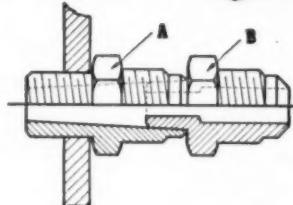
2. Whenever a strainer or drier becomes plugged and must be replaced. This is a sure indication that there is a considerable amount of foreign material in the system that should be removed before further operation is attempted.

3. Whenever continual expansion valve plugging occurs caused by wax separation. The compressor should be drained and flushed and all old oil and separated wax must be flushed from the coil before wax free oil is put into the compressor.

4. Whenever sludge and decomposed refrigerant is deposited in the system because of excessive head temperature, moisture or air in the system. The sludges will cause expansion valve trouble and when deposited in the coil will reduce the efficiency.

5. Whenever a large amount of water has found its way into the system by breakage of a water cooled condenser coil or other accidental means.

## I DO IT THIS WAY



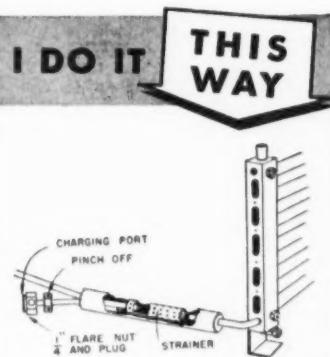
WHEN unable to remove half-unions with male flare thread on one end and male I.P. thread on the other, emergency repairs in difficult locations can be quickly made by fitting another half-union (B) inside the first one (A) as shown in the sketch. The sketch illustrates how a  $\frac{1}{8}$ -inch I.P.T. male end union can be fitted into a  $\frac{1}{4}$ -inch I.P.T. male end union and still retain the required  $\frac{3}{8}$ -inch o.d. tube male flare connection.

Open the bore of union "A" with the correct size tap drill or a taper pin reamer which will give the required bore for the pipe thread tap. Tap the bore carefully. If the location permits, reduce the length of the flared connection on "A" by sawing off one or two of the first threads with a hacksaw.

F. R. Wennington, Montreal, P. Q.

## Do You Use Nail Polish?

Some of the most masculine servicemen we know carry a small bottle of regular ladies' nail polish in their tool kits at all times. They claim it comes in mighty handy for painting the oil caps for customers who want to know "where to oil the motor", or to mark the inside threads of controls so that they can tell which ones have been tampered with. Some of them even use it to pre-mark tubing in 5 or 10-foot lengths so that they can quickly tell how much they have used on any particular job.



I HAVE found the following method of charging sealed units after repairing leaks to be simple and effective. I take a piece of  $\frac{1}{2}$ -inch tubing about 8 inches long and slip it over the disconnected capillary outlet from the bottom of the condenser. This is welded and the other end is flattened and swaged with a  $\frac{1}{4}$ -inch opening so that two pieces of  $\frac{1}{4}$ -inch tubing can be inserted, resulting in a "Y" shape. On the  $\frac{1}{4}$ -inch line that is to convey the liquid gas to the coil I silver solder a strainer saved from an old expansion valve. This is set so that about a quarter of an inch of it overlaps the end of the tubing. After this assembly is inserted with the strainer 5 inches down the  $\frac{1}{2}$ -inch tubing, I place the  $\frac{1}{4}$ -inch charging line beside it and silver solder the cap tube into the line with the strainer and entrance of the two tubes. This makes three joints and eliminates an external strainer with two flare nuts and a tee. The surface area of the strainer is roughly equal to the conventional one installed and the  $\frac{1}{2}$ -inch tube gives sufficient space for gas to get through the screen.

Harold Huber, Bothell, Wash.

## Soap Will Do It, Too

Most servicemen know that one good way of taking the squeak out of a belt drive is to lubricate the belt lightly with wax or paraffin, but if you're caught without a candle handy do you realize a bar of common hand soap will do the same trick. The only catch is that this is

**take a closer look at...**

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84

only a temporary stop-gap, and will not last as long as does the wax treatment.



#### WANT TO EARN \$5?

Then put on your thinking cap and recall some of the service shortcuts you've developed for handling some service problem more quickly, easily, or cheaply. Just jot down the idea, with a sketch if possible, and drop it in the mail to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor thinks your idea is as smart as you do, he'll send you a check for \$5 just as soon as your service tip is published in the magazine. So tune up the high-voltage brain waves now, and cash in!

#### The Noise Problem

Noise is a familiar complaint to the refrigeration serviceman. There are various types and sources of noise in a refrigeration system that can be very annoying to a customer.

The noise level in all new equipment is held to an absolute minimum by rigid factory production and inspection standards. However, after the unit is installed in the cabinet and shipped into the field, some conditions may develop to cause noisy operation.

Generally it's rather easy to trace these sources of noise, and to correct them. One common cause is loose or slightly out of place components due to vibration encountered between factory and point of destination. Loose mounting screws, bolts or tubing vibration in the condensing unit are perhaps the most common cause of them all.

All of these sources should be checked, and corrections made at the time the equipment is installed. Forgetting to do this may cause unnecessary service calls—in addition to being irksome to the customer. Getting at these nuisances before they cause you extra (and profitless) calls will give you more time for calls that do bring you extra revenue.

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PART No. F-7	PART No. F-8
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PART No. F-11	PART No. F-12
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PART No. F-13	PART No. F-14
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PART No. F-15	PART No. F-16
Suction Flapper For Sealed Kelvinator	Discharge Flapper For Sealed Kelvinator
PART No. F-17	PART No. F-18
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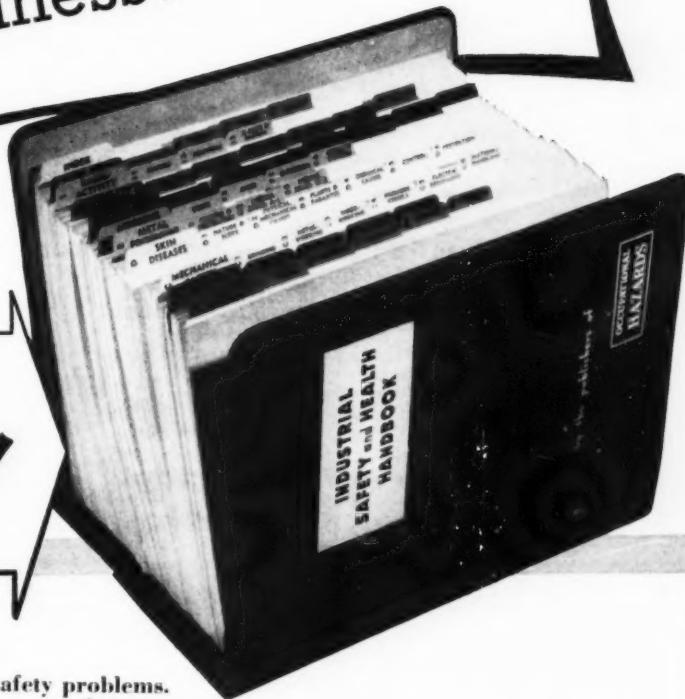
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JANUARY, 1953 • COMMERCIAL REFRIGERATION

# Do You Have Safety Problems in Your Business?

Here's the  
Answer!



If you employ people, you **have** safety problems. And they can be mighty expensive ones. Injuries and illnesses cost you money two ways: 1) work sustained disabilities are compensated for, according to your state law, out of your pocket; 2) absence from the job costs even more in lost production, training replacements.

Safety can cut your costs—no matter what business you're in, regardless how many people you employ. And here's your guide to dollar savings through accident-prevention. Its 10 separate sections cover every phase of industrial safety and health, from aluminum dust hazards to zirconium's toxic properties. It will tell you what the

dangers are and how to eliminate them from your operations.

The Industrial Safety & Health Handbook is bound in a heavy-duty binder—and it has to be. It's made for continual, rough use: you'll soon find it the most valuable book on your desk. Its nearly 800 pages are indexed and color-tabbed for fast reference. You can get an immediate answer to any safety or health problem that arises. If you have no safety engineer, you'll need this book more than ever.



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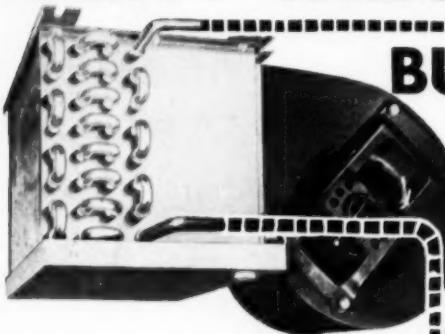
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SEE PAGE 5

JANUARY, 1953 • COMMERCIAL REFRIGERATION

## METAL STABILIZING . . .

Continued on page 30

and strip heaters are mounted behind a panel at the top of the refrigerated chamber.

The wide temperature range meant that the gaskets and liners had to be of material to meet the requirements. The circulating fan motor has special windings and bearings and is impregnated with a silicone lubricant to withstand the temperature variation.

As the required stabilization of the metals used in electronic equipment has to be done in a 16-hour period, and several cycles from high to low temperature must be completed, to

## BOOK REVIEW

**Title:** Air Conditioning  
**Publisher:** Lefax, Philadelphia, Pa.  
**Price:** \$1.00

A pocket-size booklet of data sheets presenting a handy compilation of information on all phases of air conditioning. Prepared in handy loose-leaf form to put "facts at your fingertips", this publication is specifically designed to save time by making possible ready reference to the condensed factual information it contains.

Typical of the material covered by these data sheets is a discussion of the fundamentals of air conditioning, tables of air density, conductivities of building and insulation materials, cubical contents of rooms, fan types and applications, tables of relative humidity and dew points, selection of electric motors, heat insulation in air conditioning, air flow measurement and discharge data, properties of saturated water vapor, comfort charts, and application and servicing of air conditioning systems.

accomplish the desired result, an electrically operated, cam actuated switching device was perfected. This system automatically starts and stops the cooling and heating system.

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and AIR CONDITIONING • JANUARY, 1953

## 105-YR. OLD BREWERY FULLY AIR CONDITIONED

Celebrating its 105th anniversary this year, the Erie Brewing Co., Erie, Pa., claims it is the only completely air conditioned brewery in western Pennsylvania. Not only have the brewery's general offices been air conditioned, but all store rooms, racking rooms, government and packing cellars, fermentation rooms and case beer storages are also cooled.

Twelve York industrial air conditioning units with fans totaling 54½ hp do the job formerly handled by miles of steel pipe coils. Refrigeration machinery consists of four York 10x10-in. enclosed vertical single acting ammonia compressors.

Designed and installed by York engineers under the supervision of the brewery's engineering department, headed by Owen Murray, these four compressors are driven by three 100-hp and one 125-hp electric motors. Each is equipped with forced feed lubrication and completely automatic capacity reduction, allowing for 12 steps of operation.

Erie president J. M. Maganau Sr. claims that air conditioning the production and storage departments has given the brewery new and effective operating economies. The brewery now turns out 450,000 barrels of beer per year.

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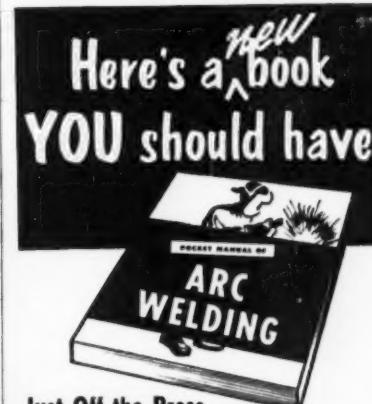
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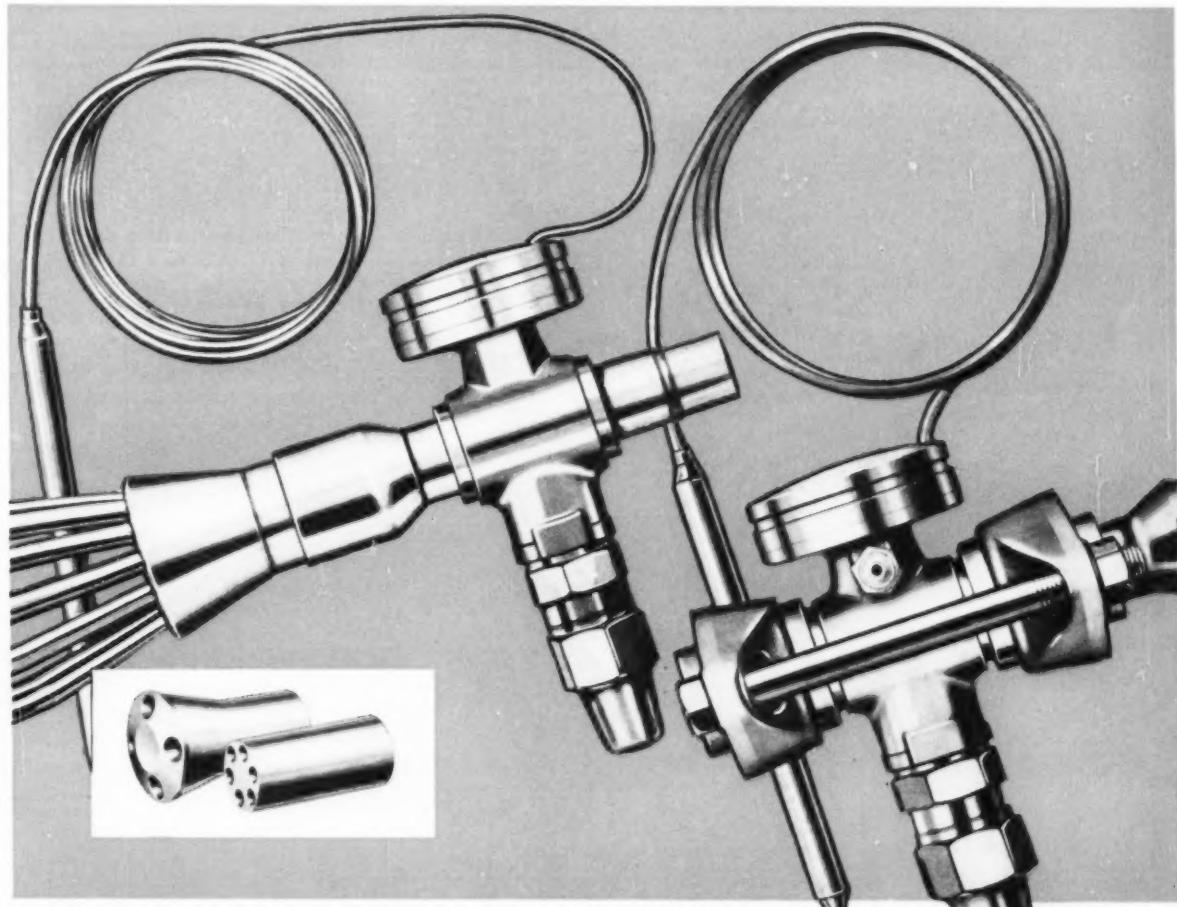
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